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# Linux 6.0

Operating System

## Getting Started Guide

# Red Hat Linux 6.0

## The Official Red Hat Linux Getting Started Guide

Red Hat Software, Inc.
Durham, North Carolina

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# Introduction

Welcome to Red Hat Linux 6.0!

At Red Hat Software, we believe we offer the best Linux distribution on the market. We hope you'll agree that the time and the money you spent for Red Hat Linux was well spent, indeed.

Recently, Linux has gained quite a bit of attention from the national and international media. What began as a "hacker's hobby" several years ago has been embraced as a powerful and economical computer operating system.

If you count yourself among the many Linux users who are discovering Red Hat Linux for the first time, this book is for you!

Inside, you'll find valuable tips which will help you get acquainted with your new desktop environment and with the way your Red Hat Linux system works. You'll be able to learn some basics and you'll find pointers to places where you can turn for more information.

This book is divided into two parts:

- **The GNOME User's Guide;**
- **The Newbie's Guide to Red Hat Linux.**

## The GNOME User's Guide

Written by David A. Wheeler and Red Hat Software, the GNOME User's Guide is an indispensable resource for navigating and customizing GNOME.

GNOME stands for GNU Network Object Model Environment. That's a fancy acronym, but it translates into a pleasing environment which offers all the power of Linux. GNOME is the default X Window System environment for Red Hat Linux 6.0.

In the GNOME User's Guide section you'll find ways to create, move and copy files, investigate your new system and much more – all within a pleasing graphical environment.

Here's a preview of what you'll find in these first 14 chapters:

- **Chapter 1: An Introduction to GNOME** – Learn a little about the history and ideas which have helped create GNOME.
- **Chapter 2: GNOME Quick Start** – Get a "quick start" on familiarizing yourself with the GNOME desktop.
- **Chapter 3: Window Managers and GNOME** – Learn a little about window managers, and which window managers you can use that work well with GNOME.
- **Chapter 4: The Enlightenment Window Manager** – An in-depth look at Enlightenment, the default window manager for Red Hat Linux. Although GNOME isn't dependent on any single window manager, Enlightenment (or "E") has captured quite a few fans because of its stylish features. Here, you'll find out how you can configure E to your liking.
- **Chapter 5: Using the GNOME Panel** – Learn the ins and outs of GNOME Panel, from which you can find and start your system's applications. Highly flexible, the Panel allows you add favorite applications, change its location, add new panels and more.
- **Chapter 6: The GNOME Desktop** – Your GNOME desktop is more than just a pretty face. Here's where you can find out how to "drag and drop" applications, store files, create folders, switch desktops and more.
- **Chapter 7: The GNOME File Manager** – The GNOME File Manager adds form to the function and power of the Midnight Commander. Here, you'll learn how to view and manipulate files – both on your system and on the Internet.
- **Chapter 8: Configuring the Panel** – Once you become comfortable with using panels, here's where you can learn how to add further productivity and style to their usefulness.
- **Chapter 9: Editing the Main Menu** – Even though it gives you easy access to applications, you're not stuck with the main menu's default configuration. Here's where you can learn how to make the menu work the way *you* work.
- **Chapter 10: The GNOME Control Center** – As advertised, the GNOME Control Center allows you to control the way your environment looks, "feels" and behaves. You'll learn how to tweak your environment in many ways.
- **Chapter 11: A Word About Session Management** – Learn how you can automatically start favorite applications when you log in.
- **Chapter 12: Panel Applets** – From system monitors to multimedia enhancements, these small applications can add productivity and fun to your environment. You'll learn what applets can serve you best in this chapter.
- **Chapter 13: GNOME CD Player** – This chapter shows you how to access and get the most out of your pre-loaded GNOME CD player.
- **Chapter 14: The GNOME Calendar** – Keep track of more than the days of the week with this application.

You'll find quite a few translations of the GNOME User's Guide, as well as the latest GNOME documentation and software at the official website:

`http://www.gnome.org/.`

Now, on to some of your Red Hat Linux system's details...

## The Newbie's Guide to Red Hat Linux

Are you rattled by terms like *root* and *user account*? This section is for you!

The second part of the Red Hat Linux Getting Started Guide, this "newbie's guide" will help you gain a toehold on the basics of your new Linux system – from creating a new account to working with files in a non-graphical environment.

There's nothing wrong with a little hand-holding – and that's what you'll find in these remaining chapters.

Here's a glimpse of what you can find:

- **Chapter 15: Welcome to Linux** – Learn how to create your own user account to maximize your system's safety. You'll also find out how to shut down your system, create rescue disks and more.
- **Chapter 16: You Are Here** – Learn how to navigate through your system at the shell prompt, how to combine commands and see how everything fits together.
- **Chapter 17: Managing Files and Directories** – Here, you'll learn more about the powerful *shell* you're using, how to save yourself time and frustration when you're typing in commands and how to rename, copy, delete and move files and directories.
- **Chapter 17: What Do I Do Now?** – Looking for pointers to more information about your Red Hat Linux system? Here, you'll find tips about where you can find plenty of documentation and help. You can also learn more about your X Window System and how to work with other system tasks.

## More to Come

As Linux evolves, so does the support you'll find for Red Hat Linux. The Red Hat Linux Getting Started Guide is part of that support – and evolution. In coming editions, expect to find more essential information to help you get the utmost from your Red Hat Linux system.

That's also where you come in.

## Send in Your Feedback

If you'd like to make suggestions about the Red Hat Linux Getting Started Guide, please mention this guide's identifier:

GSG-6.0-Print-RHS (04/99)

That way we'll know exactly which version of the guide you have. You can send mail to:

`docs@redhat.com`

## A Thousand Thanks

This guide is the definition of a group project, since so many provided valuable assistance, from offering suggestions and sharing knowledge to proofreading.

Thank you to Edward C. Bailey, the documentation department's manager. Ed was there from concept to "when the rubber hit the road," offering his expert advice on style and substance.

Thank you also to Sandra A. Moore, in charge of the Official Red Hat Linux Installation Guide, for her patience and help in formatting and proofing. And to David Mason, RHAD Labs' technical writer, who worked like to a demon to put together the GNOME User's Guide.

Red Hat Software's support team – particularly Stephen Smoogen and Eric Rahn Nolen ("Thor") were more than generous in offering their time and advice.

And to the engineers, who build the best Linux distribution, a big "thank you"! It is their work which makes Red Hat Linux so worthwhile.

And, of course, thank you to Linus Torvalds and the thousands of Linux developers around the world. Ultimately, this is *their* operating system – and it is a wonder.

*Paul Gallagher*

# Chapter 1. An Introduction to GNOME

## What is GNOME

GNOME is a user-friendly desktop environment that enables users to easily use and configure their computers. GNOME includes a panel (for starting applications and displaying status), a desktop (where data and applications can be placed), a set of standard desktop tools and applications, and a set of conventions that make it easy for applications to cooperate and be consistent with each other. Users of other operating systems or environments should feel right at home using the powerful graphics-driven environment GNOME provides.

GNOME is completely open source (free software), with freely available source code developed by hundreds of programmers around the world. If you would like to learn more about the GNOME project please visit the GNOME web site at http://www.gnome.org.

GNOME has a number of advantages for users. GNOME makes it easy to use and configure applications without using text-only interfaces. GNOME is highly configurable, enabling you to set your desktop the way you want it to look and feel. GNOME's session manager remembers previous settings, so once you've set things the way you like they'll stay that way. GNOME supports many human languages, and you can add more without changing the software. GNOME even supports several Drag and Drop protocols for maximum interoperability with applications that aren't GNOME-compliant.

GNOME also has a number of advantages for developers which indirectly also help users. Developers don't need to purchase an expensive software license to make their commercial application GNOME compliant. In fact, GNOME is vendor neutral - no component of the interface is controlled solely by one company or restricted from modification and redistribution. GNOME applications can be developed in a variety of computer languages, so you're not stuck with a single language. GNOME uses the Common Object Request Broker Architecture (CORBA) to allow software components to interoperate seamlessly, regardless of the computer language in which they are implemented, or even what machine they are running on. Finally, GNOME runs on a number of Unix-like operating systems, including Linux.

GNOME is an acronym for the GNU Network Object Model Environment, so GNOME is a part of the larger GNU project. The GNU Project started in 1984 to develop a completely free Unix-like operating system. If you'd like to learn more about the GNU project you can read about it at http://www.gnu.org.

## About This Guide

This users guide is designed to help you find your way around GNOME with ease. Both new and experienced computer users can benefit from this guide. If you're new to GNOME, or even computers, you'll gain an idea of how to use your desktop. If you're an advanced user, you can work with expert tips which will help you to become familiar with GNOME.

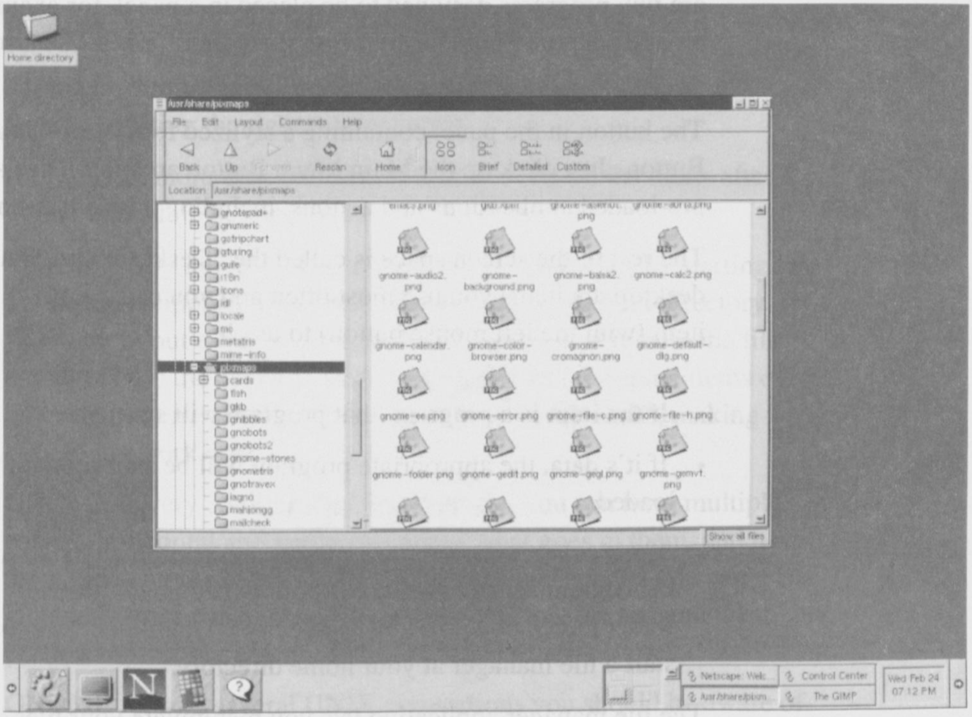
Although this was written originally in English, there are many translations of the guide available now or in the near future. If you would like to have this guide in another language you should check your operating system distribution or visit the GNOME Web Site (http://www.gnome.org) to find out more information on translation.

# Chapter 2. GNOME Quick Start

## GNOME Quick Start

Figure 2-1 shows an example of GNOME running. GNOME is very configurable, so your screen may look quite different.

**Figure 2-1. Sample GNOME Display.**


Home directory
/usr/share/pixmaps
File
Edit
Layout
Commands
Help
Back
Up
Forward
Rescan
Home
Icon
Brief
Detailed
Custom
Location
/usr/share/pixmaps
gnotepad+
gnumeric
gotripchart
gturing
gule
i18n
icons
idl
locale
mc
metatris
mime-info
pixmaps
cards
fish
gkb
gnibbles
gnobots
gnobots2
gnome-stones
gnometris
gnotravex
iagno
mahjongg
mailcheck
gnome-audio2.png
gnome-background.png
gnome-balsa2.png
gnome-calc2.png
gnome-calendar.png
gnome-color-browser.png
gnome-cromagnon.png
gnome-default-dlg.png
gnome-ee.png
gnome-error.png
gnome-file-c.png
gnome-file-h.png
gnome-folder.png
gnome-gedit.png
gnome-gegl.png
gnome-gemvt.png
Show all files
Netscape: Wel...
Control Center
/usr/share/pixm...
The GIMP
Wed Feb 24
07:12 PM

The long bar at the bottom of *Figure 2-1* is a GNOME Panel, which contains a collection of useful panel applets and menus. Panel applets are tiny programs designed to be placed in a panel, for example, the clock applet on the far right shows the current time. The arrows on each side of the panel hide (and unhide) the panel.

The button in the panel containing a stylized foot is the Main Menu Button. Just click on the Main Menu Button and you'll see a menu of pre-loaded applications and actions, including a logout command.

The rest of the screen space is called the "Desktop." Just place on your desktop the items you use most often and you can double-click on an item (with the left mouse button) to use it:

- If the item is a program, that program will start.
- If it's data, the appropriate program will be start up with that data loaded.
- If it's a directory, the file manager application will start and show the contents of that directory. Your desktop will probably have a folder icon labelled "Home directory". Double-clicking on it will start a file manager at your home directory.

The file manager application lets you manipulate your files. The left side of its window shows directories, and the right side shows the selected directory's contents:

- To move the file or directory, just drag and drop it.
- To copy a file, hold down the **CTRL** key while dragging.
- To run a program or edit a data file, double-click it.
- To perform other operations on a file (such as rename or delete), select it using the right mouse button.
- To select more than one item at a time, click on the items after the first one while holding down the SHIFT key.

You can easily move or copy files between directories by starting two file manager applications, each one showing a different directory. If you want to put a file on your desktop, simply drag it from the file manager onto the desktop. In fact, dragging and dropping items onto other items generally "does the right thing" in GNOME, making it easy to get work done.

GNOME is very configurable; for example, you can have multiple panels (horizontal and vertical), choose what goes in them, and have them hide automatically. There are many panel applets you can include in your panel. You can also change how the screen looks; later portions of this document tell you how.

GNOME follows several UNIX conventions you should be aware of. The left mouse button is used to select and drag items. The right mouse button brings up a menu for the selected object (if a menu applies). Most UNIX mice have 3 buttons, and the middle button is used to paste text (if in a text area) or to move things. If you only have two buttons, press the left and right buttons simultaneously to simulate the middle button. To copy text, use the left button to drag across the text you want to copy, move to the place you want the text to be, and press the middle button.

When an application window is displayed, there will be some buttons in its borders for controlling the window. These include buttons to minimize, maximize, and close the window. Their appearance can be configured and is controlled by a component called a "window manager."

Two examples of border styles are the Clean style (*Figure 2-2*) and the ICE style (*Figure 2-3*):

- In the Clean border style, the underscore means minimize, the square means maximize (use the whole screen), and the X button means close the window.
- In the ICE style, the X button will close the window. Clicking the arrow with the left mouse button minimizes the window, while clicking with the right mouse button shows a menu of other options.

**Figure 2-2. Clean Border Style**

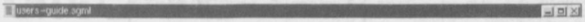
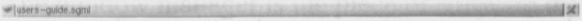
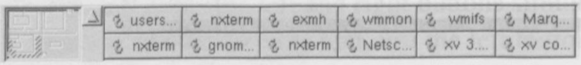


**Figure 2-3. ICE Border Style**



If you are using a default installation of GNOME you may notice that minimizing a window actually causes that window to disappear from your desktop. To regain that window you may use the GNOME Pager which is located on the Panel. The Pager will show you which tasks are running and where they are on your desktops. You will find the application you minimized in the task list on the right side of the GNOME Pager. Press the button for that application and it will return to your desktop.

**Figure 2-4. The GNOME Pager**


users...
nxterm
exmh
wmmon
wmifs
Marq...
nxterm
gnom...
nxterm
Netsc...
xv 3....
xv co...

You may read more about the GNOME Pager in the section called *GNOME Pager* in Chapter 12.

The following sections go into more detail, describing each component of the system.

# Chapter 3. Window Managers and GNOME

## About Window Managers

The window manager is the piece of software that controls the windows in the X window environment. The placement, borders, and decorations of any window is managed by the window manager. This is very different from many other operating systems, and the way GNOME deals with window managers is different from other desktop environments.

As stated earlier in this guide, GNOME is not dependent on any one window manager. This means that major parts of your desktop environment will not change when you decide to switch window managers. GNOME works with the window manager to give you the easiest work environment you can have. GNOME does not worry about window placement but gets information from the window manager about their placement. The GNOME Pager will only work with a GNOME compliant window manager as will drag and drop on the desktop.

At the time of this version of the GNOME User's Guide the Enlightenment Window Manager is the only window manager that is 100% compliant. There are many other window managers that are partially compliant or are being worked to meet compliance.

Some of the window managers that have partial to full compliance at the time of this version of the GNOME User's Guide are:

- Enlightenment - http://www.enlightenment.org
- Icewm - http://www.kiss.uni-lj.si/~k4fr0235/icewm/
- Window Maker - http://www.windowmaker.org
- FVWM - http://www.fvwm.org/

## Changing Window Managers

At any time you may change the window manager you are using by utilizing the Window Manager Capplet in the GNOME Control Center. You may read more about this Capplet in the section called *Window Manager Capplet* in Chapter 10

**IMPORTANT:** Keep in mind that the window manager you choose to use may not be compliant with GNOME and you may not benefit from some of GNOME features if you use it.

# Chapter 4. The Enlightenment Window Manager

## Introduction

GNOME is a desktop environment that is not dependent on any one window manager in order to control how applications and other features interact with each other. GNOME can work with a variety of window managers. The window manager is what controls the window borders, window decorations, and the functionality of those windows. Currently there are about three or four window managers that are considered GNOME compliant. Being GNOME compliant means much more than simply being able to run with GNOME; it also means being aware of GNOME and what GNOME offers. This includes session management, desktop settings, and interactivity with applications such as the GNOME Pager.

The Default Window Manager for this release of Red Hat Linux is a window manager called Enlightenment. Within Enlightenment there is a tool which will help you to configure the window manager to your specifications.

# The Enlightenment Configuration Tool

There are two ways to launch the Enlightenment Configuration tool (E-conf). You may open the GNOME Control Center and select the *Window Manager Capplet* from the *Desktop* group. If you have Enlightenment as your current window manager you may run E-conf by pressing the Run Configuration Tool for Enlightenment button.

You may also launch E-conf by clicking your middle mouse button (or both right and left mouse buttons if you have emulation) on the desktop and selecting the **Enlightenment Configuration** item from the **pop-up** menu.

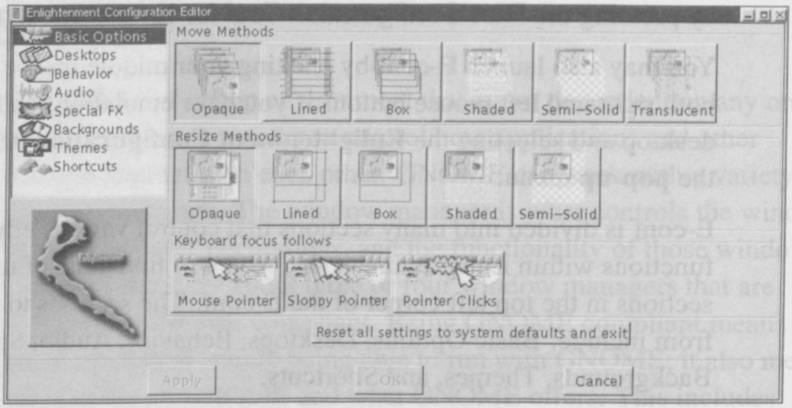
E-conf is divided into many sections that control various effects and functions within Enlightenment (E). You will find a list of these sections in the top left corner of the E-conf. The sections to choose from include: Basic Options, Desktops, Behavior, Audio, Special FX, Backgrounds, Themes, and Shortcuts.

## Basic Options

The Basic Options section of E-conf lets you configure how E controls the movement and focus of windows on your desktop. Each method for controlling windows has a small image to show you what they look like, but perhaps the best way to get a feel is to select one, press the

Apply button and move the window around. There are three areas to configure: Move Methods, Resize Methods, and Keyboard focus follows.

**Figure 4-1. Enlightenment Basic Options**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Move Methods
Opaque
Lined
Box
Shaded
Semi-Solid
Translucent
Resize Methods
Opaque
Lined
Box
Shaded
Semi-Solid
Keyboard focus follows
Mouse Pointer
Sloppy Pointer
Pointer Clicks
Reset all settings to system defaults and exit
Apply
OK
Cancel

- *Move Methods* - This area controls the way windows look when you move them around your desktop with your mouse. You may choose from Opaque, Lined, Box, Shaded, Semi-Solid, and

Translucent. Depending on your machine speed some of these move methods may work slower than others.

- *Resize Methods* - The Resize Methods option controls how the windows look when you resize them. You may choose among Opaque, Lined, Box, Shaded, and Semi-Solid. Again, depending on your machine speed some of these methods may work slower than others.
- *Keyboard focus follows* - This area controls which window gets the focus. Getting the focus means that the keyboard can control the window and if there is a distinction in you enlightenment theme, the window will be highlighted. You may choose from Mouse Pointer, Sloppy Focus, and Pointer Clicks.

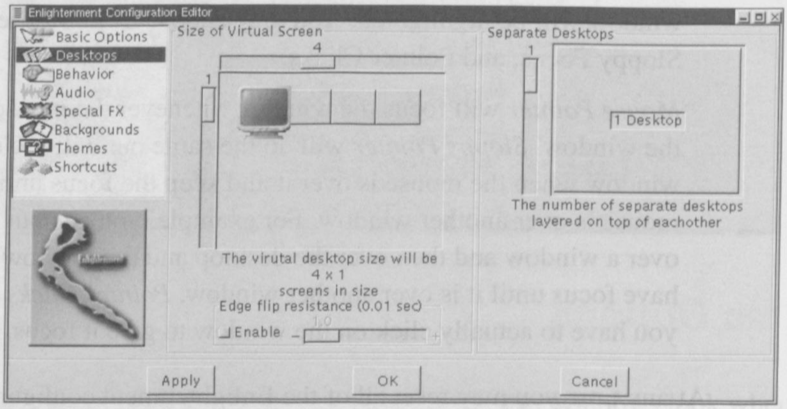
  *Mouse Pointer* will focus the window whenever the mouse is over the window. *Sloppy Pointer* will do the same but will focus the window when the mouse is over it and keep the focus until the mouse is over another window. For example, you can put the mouse over a window and then over the desktop and the window will still have focus until it is over another window. *Pointer Clicks* means that you have to actually click on the window to give it focus.

At any time you may reset all of the Enlightenment configurations to the default settings by pressing the Reset all settings to system defaults and exit button.

## Desktops

As you read in the section called *Desktop Areas* in Chapter 6, GNOME supports the use of multiple desktop areas, and for the advanced user, multiple desktops. The control over these areas and desktops is actually handled by the window manager. The Enlightenment Configuration tool allows you to change the number of areas and desktops you have use of in your work environment.

**Figure 4-2. Enlightenment Desktops**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Apply
OK
Cancel

Size of Virtual Screen: 4 × 1

The virutal desktop size will be
4 x 1
screens in size

Edge flip resistance (0.01 sec): 10

☐ Enable

Separate Desktops: 1

1 Desktop

The number of separate desktops layered on top of eachother

The Desktops Section of E-conf has two main tools to let you change the number of areas and desktops you use. The first tool is the *Size of Virtual Screen* which controls the number of desktop areas. Desktop areas are really just one big screen broken into many "virtual areas". The advantage to using virtual areas over multiple desktops is that drag and drop on the desktop will work across areas as will work being done in applications such as the GNOME File Manager. To use this tool slide the two sliders until you have the number of virtual areas, across and down, that you wish to use.

The second tool is *Separate Desktops*, which allows you to set the number of desktops you wish to use. Unlike desktop areas these are completely separate desktops. To use this tool move the slider up or down until you have the number of desktops you wish to use.

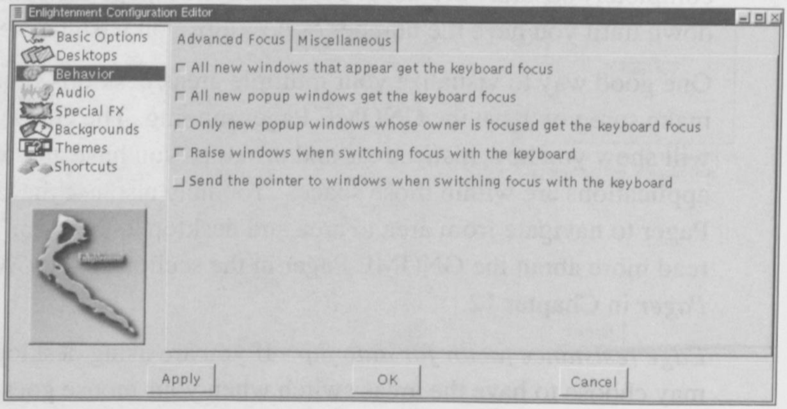
One good way to visualize your multiple areas/desktops situation is to make sure you have the GNOME Pager running. The GNOME Pager will show you how many areas and desktops you have and where your applications are within those spaces. You may also use the GNOME Pager to navigate from area to area and desktop to desktop. You can read more about the GNOME Pager in the section called *GNOME Pager* in Chapter 12.

*Edge resistance factor for auto flip* - If you are using desktop areas you may choose to have the areas switch when your mouse goes past the edge of the screen in the direction of another area. If you do have this feature on you may change the resistance the mouse has when it is moving past the edge by moving the slider to the number of seconds it takes to change to the next desktop.

## Behavior

The Behavior Section of E-conf allows you to control various focus and miscellaneous behaviors in E.

**Figure 4-3. Enlightenment Behavior**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Advanced Focus
Miscellaneous
Apply
OK
Cancel

☐ All new windows that appear get the keyboard focus

☐ All new popup windows get the keyboard focus

☐ Only new popup windows whose owner is focused get the keyboard focus

☐ Raise windows when switching focus with the keyboard

☐ Send the pointer to windows when switching focus with the keyboard

- *Advanced Focus* - This tab allows you to change properties related to focusing windows.

  *All new windows that appear get the keyboard focus* - This ensures that when you start a new application you can start working on it when it appears without moving the mouse to get the focus of the window.

  *All new pop-up windows get the keyboard focus* - This will give the focus to new pop-up windows only. If you have this selected and the "All new windows that appear get the keyboard focus" not selected, your pop-ups will get the focus no matter where they appear, but new applications started will not. An example of a pop-up window is an error message you might get in an application.

  *Only new pop-up windows whose owner is focused get the keyboard focus* - This will give the focus to new pop-up windows only if the application that launched the window has the focus beforehand.

  *Raise windows when switching focus with the keyboard* - If you use keystrokes to change the focus of your windows this will bring the focused window to the foreground.

  *Send pointer to windows when switching focus with the keyboard* - If you use keystrokes to change the focus of your windows, this will send your mouse pointer to the focused window.

- *Miscellaneous* - This tab has miscellaneous Enlightenment behaviors.

  *Tooltips ON/OFF & timeout for tooltip pop-up* - This controls whether you would like tooltips to display on various parts of an Enlightenment-controlled window. A tooltip is a small information window which opens when your mouse pointer hovers over an element in an application or component. The time slide bar next to the button lets you change how long it takes for the tooltips to appear once your mouse is over a component controlled by E. The speed is measured in seconds.

  *Automatic raising of windows after X seconds* - This will focus a non-focussed window after the seconds you specify when your mouse is over it.

  *Transient pop-up windows appear together with leader* - If your application brings up small pop-up windows as part of its normal function this will ensure that those pop-up windows stay with the main window. This can be helpful if your work flow is interrupted by the pop-up window showing up on the opposite side of your screen while you are working.

  *Switch to where pop-up window appears* - This will send the mouse cursor and keyboard control to any pop-up window that appears on the desktop.

*Display icons when windows are iconified* - If you check this option and minimize your window this will display available icons for the application running in the window onto a tile that is created. If you are using the GNOME Pager you do not need to enable this option as it will allow you to access minimized applications.

*Place windows manually* - If you wish to place a new window yourself this will give the mouse the placement control of any new window.

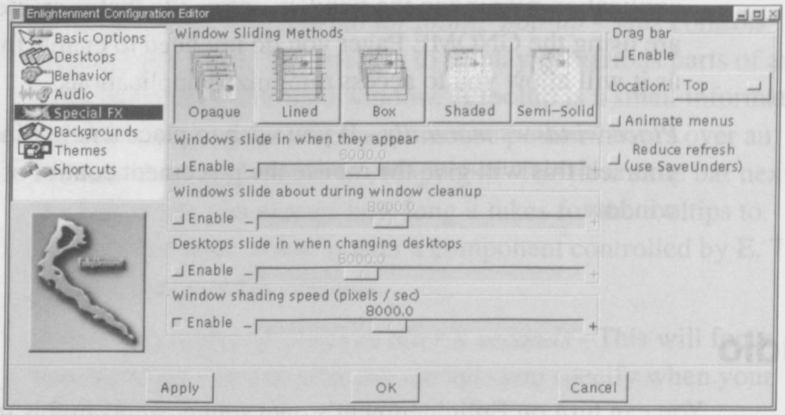
## Audio

You can turn on Enlightenment's own sound events in this section.

## Special FX

The Special FX Section on E-confcontrols various special effects that E can use to control windows. If you have a slower machine you might consider disabling these features in this section.

**Figure 4-4. Enlightenment Special Effects**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Window Sliding Methods
Opaque
Lined
Box
Shaded
Semi–Solid
Drag bar
Apply
OK
Cancel

☐ Enable

Location: Top

☐ Animate menus

☐ Reduce refresh (use SaveUnders)

Windows slide in when they appear

☐ Enable 6000.0

Windows slide about during window cleanup

☐ Enable 8000.0

Desktops slide in when changing desktops

☐ Enable 6000.0

Window shading speed (pixels / sec)

☑ Enable 8000.0

- *Windows Sliding Methods* - This area controls what windows look like when they slide in on first display. You must have the slide in feature enabled for these to work. You may choose from Opaque, Lined, Box, Shaded, and Semi-Solid.
- *Windows slide in when they appear* - This is where you can turn on or off the special effect of windows sliding in. To turn it on or off

press the small button beside the speed slide bar. The speed slide bar controls how fast the windows slide and is based on pixels per second.

*Windows slide about when cleanup in progress* - This controls the special effect of windows sliding in when you select the **Cleanup Windows** menu item from the Enlightenment menus. To turn it on or off press the small button beside the speed slide bar. The speed slide bar controls how fast the windows slide about and is based on pixels per second. For more information about the **Cleanup Window** function see the section called *Enlightenment Menus*.

*Desktops slide in when changed* - If you use multiple desktops this will make the desktops slide in when you switch to a new one. To turn it on or off press the small button beside the speed slide bar. The speed slide bar controls how fast the desktop slides in and is based on pixels per second.

*Window shading speed* - If you choose to have this option you can shade a window by double clicking on its title bar. Shading will draw the body of the window up into the title bar so that you only see the title bar on the screen. Another double click will return the window to it's original state. The time slide bar next to the button controls how fast this behavior works. The speed is measured in pixels per second.

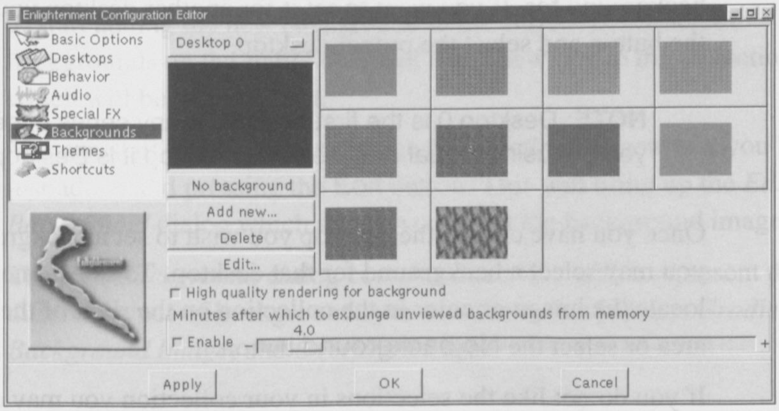
- Drag bar - Some Enlightenment themes will include a Drag bar which allows you to slide and peak into the next Desktop area or Desktop. If you wish not to have this on, make sure it is not selected. You may also decide where to place the Drag bar if you do have it enabled.
- *Animate Menus* - This will control the way Enlightenment menus are displayed. The menus will be animated if you enable this feature by pressing the small button.
- *Reduce refresh by using more memory* - This will place menus into memory to speed them up. Depending on your menus this can place a sizeable hit on your system memory.

## Backgrounds

You may choose to let Enlightenment control your desktop background images. Setting the background is controlled in this area of the Enlightenment Configuration tool.

> **IMPORTANT:** If you do choose to have Enlightenment set the desktop background you will not be able to use the GNOME Control Center's Background Properties Capplet. If you are new to GNOME or Enlightenment it is recommended that you do not use this feature.

**Figure 4-5. Enlightenment Backgrounds**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Desktop 0
No background
Add new...
Delete
Edit...
Apply
OK
Cancel

☐ High quality rendering for background

Minutes after which to expunge unviewed backgrounds from memory

☐ Enable 4.0

## Setting the Background

The Enlightenment background selector acts as much as a file viewer for your backgrounds as it does a creator of them. You will notice first that there is a large area to preview the backgrounds. This area is not only a good place to preview your backgrounds but it acts as an area for "bookmarking" them.

To set a background for your desktop you must first choose which desktop you want to set the background for. The top button which reads Desktop 0 will show you which desktop you are setting the background for. If you want to set it for another desktop you can press the button and select the proper desktop.

> **NOTE:** Desktop 0 is the first desktop in any series of desktops. If you are using virtual areas on one desktop it is Desktop 0 as well.

Once you have chosen the desktop you wish to set a background for you may select a background for that desktop. To select one simply locate the image or color in the collection on the right of the preview area or select the No background button.

If you do not like the selections in your collection you may create a new one. You will find more information about making a new background in the next section.

> **NOTE:** If you select the No Background button for a desktop, another application or the GNOME Control Center's Background Properties Capplet can set the background for that particular desktop.

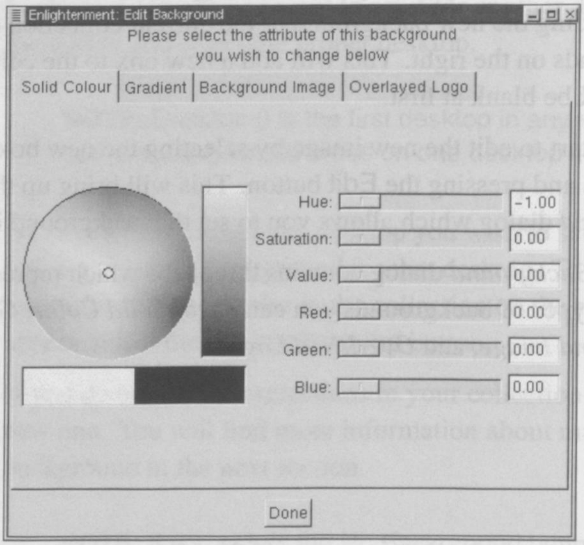
## Creating a New Background

To create a new background you must first press the Add new button to start adding the new background to the current collection of backgrounds on the right. This will add a new box to the collection which will be blank at first.

You can start to edit the new image by selecting the new box you have just added and pressing the Edit button. This will bring up the *Edit Background* dialog which allows you to set the background image.

The *Edit Background* dialog contains three tabs which represent three different types of backgrounds you can have: *Solid Color*, *Gradient*, *Background Image*, and *Overlayed Logo*.

**Figure 4-6. Solid Color Background**

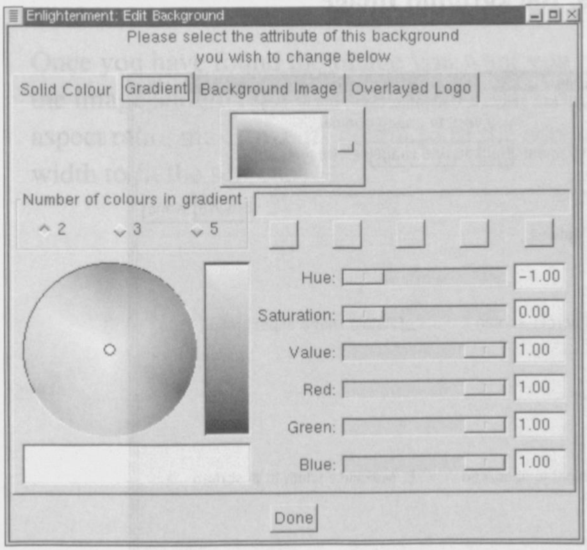

Enlightenment: Edit Background
Solid Colour
Gradient
Background Image
Overlayed Logo
Done

Please select the attribute of this background you wish to change below

Hue: -1.00
Saturation: 0.00
Value: 0.00
Red: 0.00
Green: 0.00
Blue: 0.00

- *Solid Color* - This tab is simply a color selector and color properties slidebars which allow you to choose the solid color you wish to use for your background.

**Figure 4-7. Gradient Color Background**



Enlightenment: Edit Background
Solid Colour
Gradient
Background Image
Overlayed Logo
Done

Please select the attribute of this background you wish to change below

Number of colours in gradient

● 2 ○ 3 ○ 5

Hue: -1.00

Saturation: 0.00

Value: 1.00

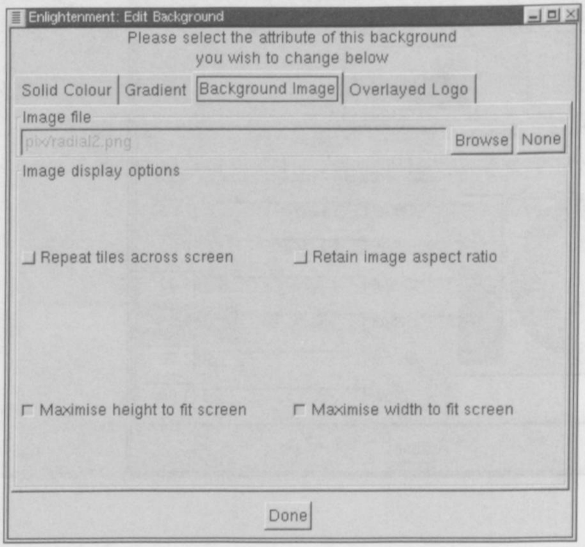
Red: 1.00

Green: 1.00

Blue: 1.00

- *Gradient* - This tab combines the color selector and color properties slide bars with a choice of how many colors you would like in the gradient. You can select as many as five colors but you must specify the color for each selection.

**Figure 4-8. Background Image**



Enlightenment: Edit Background

Please select the attribute of this background
you wish to change below

Image file: pix/radial2.png

Image display options

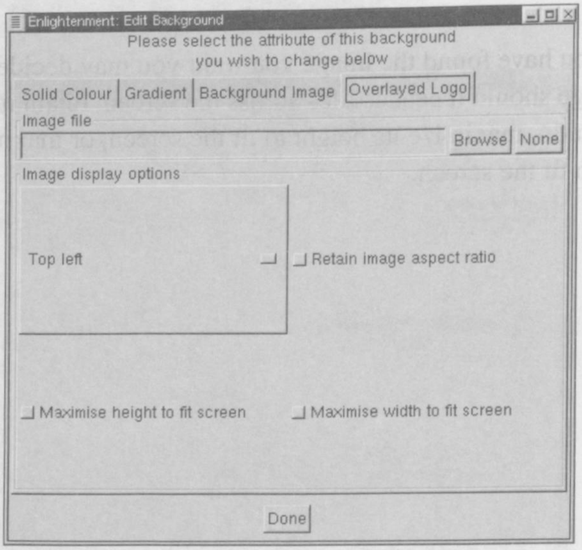
☐ Repeat tiles across screen
☐ Retain image aspect ratio
☐ Maximise height to fit screen
☐ Maximise width to fit screen

Solid Colour
Gradient
Background Image
Overlayed Logo
Browse
None
Done

- *Background Image* - This tab allows you to select an image on your system to display as your background. You may press the Browse button to find the image and the None button to clear any selected image.

Once you have found the image you want you may decide whether the image should repeat as tiles across the screen, retain its own aspect ratio, maximize its height to fit the screen, or maximize its width to fit the screen.

**Figure 4-9. Overlayed Logo**


Enlightenment: Edit Background
Solid Colour
Gradient
Background Image
Overlayed Logo
Browse
None
Done

Please select the attribute of this background you wish to change below

Image file

Image display options

Top left

☐ Retain image aspect ratio

☐ Maximise height to fit screen

☐ Maximise width to fit screen

- *Overlayed Logo* - This tab will allow you to overlay an image on the background you have already set in the other tabs. You may search for the correct image with the Browse button and clear any selection with the None button.

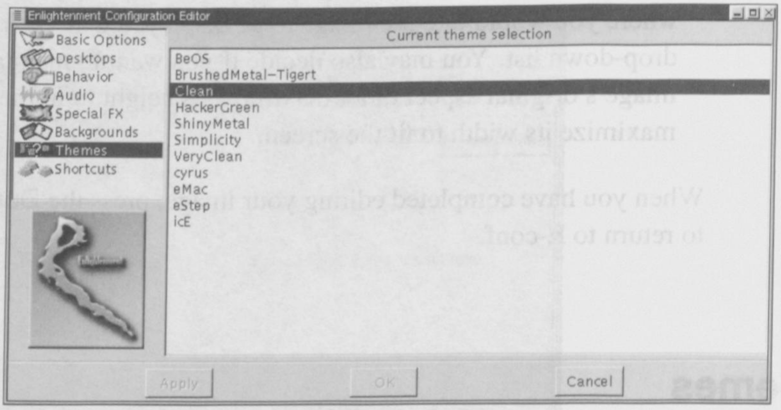
Once you have found the image you wish to overlay you can select where you would like the image to be displayed with the placement drop-down list. You may also decide if you want to maintain the image's original aspect ratio, maximize its height to fit the screen, or maximize its width to fit the screen.

When you have completed editing your image, press the Done button to return to E-conf.

## Themes

Enlightenment is known for many things to the Linux community, not least of which is the sometimes fantastic and personalized look. This can be attributed to the one of the most fun features of Enlightenment, support of themes. These themes have been created by Raster and many E users throughout the world. In fact, a Web site has been set up to be a repository of E themes, http://e.themes.org.

**Figure 4-10. Enlightenment Themes**


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
Apply
OK
Cancel

Current theme selection

- BeOS
- BrushedMetal-Tigert
- Clean
- HackerGreen
- ShinyMetal
- Simplicity
- VeryClean
- cyrus
- eMac
- eStep
- icE

E themes must have an extension of *.etheme* to work. Some themes might be made for older version of Enlightenment and will not work with the newest release so make sure you are getting a compatible version.

Once you have found a theme you would like to have for E you must put it in your

`~/.enlightenment/themes/`

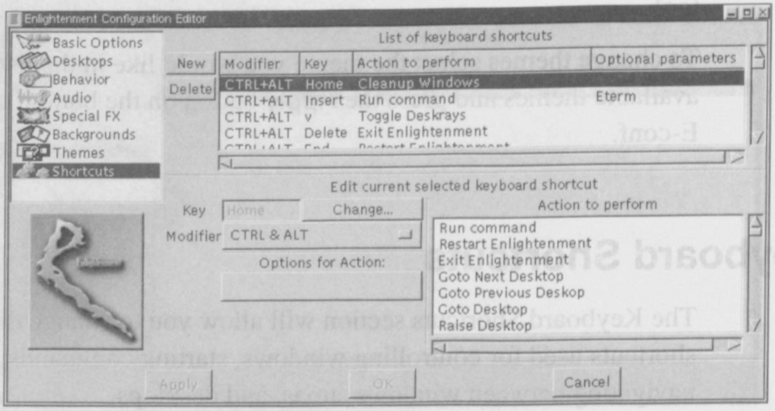
directory. All *.etheme* files in this directory will be available for selection in the *Themes* section of the Enlightenment Configuration tool.

To change themes select the theme you would like in the list of available themes and press the Apply button on the bottom of the E-conf.

## Keyboard Shortcuts

The Keyboard Shortcuts section will allow you to change the keyboard shortcuts used for controlling windows, starting commands, and navigating between windows, areas, and desktops.

Figure 4-11. Enlightenment Keyboard Shortcuts


Enlightenment Configuration Editor
Basic Options
Desktops
Behavior
Audio
Special FX
Backgrounds
Themes
Shortcuts
List of keyboard shortcuts
New
Delete
Edit current selected keyboard shortcut
Change...
Options for Action:
Action to perform
Run command
Restart Enlightenment
Exit Enlightenment
Goto Next Desktop
Goto Previous Deskop
Goto Desktop
Raise Desktop
Apply
OK
Cancel

| Modifier | Key | Action to perform | Optional parameters |
|---|---|---|---|
| CTRL+ALT | Home | Cleanup Windows | |
| CTRL+ALT | Insert | Run command | Eterm |
| CTRL+ALT | v | Toggle Deskrays | |
| CTRL+ALT | Delete | Exit Enlightenment | |

Key: Home
Modifier: CTRL & ALT

The Keyboard Shortcuts section is divided into two main areas, *List of keyboard shortcuts* and the *Edit current selected keyboard shortcut*.

In the *List of keyboard shortcuts* you can see which shortcuts have already been defined and select them to edit. You may also add new shortcuts by pressing the New button and delete them by pressing the Delete button.

The *Edit current selected keyboard shortcut* area is where you actually define what the keyboard shortcut will be. To use this area, you must select the shortcut you wish to edit, or select a newly added shortcut after you press the New button. Once a shortcut has been selected you can change the keys it uses or even the function it performs.

To change the keys used for a shortcut press the *Modifier* selection button and select which modifiers you wish to use. Modifiers are the keys **ALT**, **CTRL**, and **SHIFT**. You may select one modifier or a combination of modifiers to use with your shortcut.

At this point you will also need to change the key being used by pressing the Change button beside the *Key* definition box. Once you press the Change button you will receive a short message pop-up window which will tell you to press the desired key. Press the key and the definition will be changed.

To assign the new shortcut to an action simply scroll though the *Action to perform* list and select the action you wish to perform with this shortcut.

Some keystrokes you wish to use might have an action that needs defining. For example, if you wish to use a keyboard shortcut to change to a particular desktop you may select **Goto Desktop**. In the *Options for Action* you may define which desktop you want to go to by typing in the correct number.

# Enlightenment Menus

Like all other window managers Enlightenment is designed to be used with or without a desktop environment like GNOME running on top of it. This means that there is some funcitonality in it which allows you to do things like start applications and move between deksotps, etc.

To this end, Enlightenment provides you with menus to launch applications and perform tasks. These menus may be used in one of two places that provide different functionality: the desktop and any window border.

## Enlightenment Desktop Menus

To access the desktop menus, click with your middle mouse button (or both right and left mouse buttons if you have emulation enabled) on the desktop. This will bring up the Enlightenment menus.

The desktop menus will provide you with various applications that you might have installed on your system. There are some applications in the menu that you may not have installed which the creator of Enlightenment chose to put in the menus.

The GNOME main menu items are mirrored in the Enlightenment menus as well. Plus you can launch the Enlightenment Configuration tool or change themes on the fly.

## Guide to Enlightenment Desktop Menus

> **IMPORTANT:** These menus may be different if the creator of an Enlightenment theme changes them. If there are options not covered in this guide you should check the documentation associated with the theme you are using.

- **GNOME Apps** - This is a mirror of the GNOME Main Menu applications.
- **User Apps** - This is a mirror of any apps you have added to the User menu in the GNOME Main Menu.
- **Other Programs** - These are applications that the creator of Enlightenment or the creator of the theme you are using decides to include. You may or may not have these applications loaded on you machine.
- **Desktop** - This menu includes items that make changes to your desktops.
  - **Cleanup Desktop** - This will rearrange the windows on your

    desktop to a cleaner pattern by arranging them in a pre-determined order. This is very useful if you are having trouble finding an application due to the clutter on your desktop.

  - **Go to Next Destop** - This will take you to either the next desktop or the next desktop area you have, depending on which is next.
  - **Go to Previous Desktop** - This will take you to either the previous desktop or area, depending on which is next.
  - **FX Ripples** - If you have time on your hands and perhaps a good sense of humor, select this item and keep a close eye on the bottom of your screen.

- **Themes** - This will search the themes directory for any themes you have installed on your machine. You may select any theme you have available and change the theme on the fly.
- **Enlightenment Configuration** - This will launch the Enlightenment Configuration tool.
- **About Enlightenment** - This will launch a small window to give you more information on Enlightenment.
- **Help** - This will launch Enlightenment's Help System
- **Restart Enlightenment** - This will restart Enlightenment completely. If you are using GNOME on top of Enlightenment this

is not a recommended option, instead, you should use the GNOME Logout.

## Enlightenment Window Menus

The menus that are provided on the window borders can be launched one of two ways. If the creator of the theme you are using has included it you may use a menu button. You might find that this is not the case for certain themes, in which case you can use the second selection method.

The second way to get the window border menus is to press the **Alt** key and the right mouse button anywhere on the window border or in the window itself. This will work with the default keyboard shortcuts that ship with Enlightenment but you should check and make sure that you have not changed this keystrokes in the Enlightenment Configuration Tool.

The Enlightenment window border menus allow you to do specific things to the window itself.

### Guide to Enlightenment Window Menus

> **IMPORTANT:** These menus may be different if the creator of an Enlightenment theme changes them. If there are options not covered in this guide you should check the documentation associated with the theme you are using.

- **Close** - This will close the window.
- **Annihilate** - This will kill the application if you are having trouble closing the window.
- **Iconify** - This will iconify your window. If you are using the GNOME Pager it will simply minimize the window to the task list on the GNOME Pager. If you are not running the GNOME Pager it will minimize it to an icon based on the applciation.
- **Raise** - This will raise the window to the front of all other windows on your desktop.
- **Lower** - This will lower the window to the bottom of all of the windows on the desktop.
- **Shade/Unshade** - This will "shade" a window or unshade it if it has already been shaded. Shading a window will "draw" the window up into the window titlebar so that all you see is the titlebar itself.
- **Stick/Unstick** - This menu item allows you to make a window

visible on all desktops and desktop areas.

- **Desktop** - The items in this menu allows you to move a window to another desktop area. The selections available are: **Move to Area Right**; **Move to Area Left**; **Move to Area Above**; **Move to Area Below**.
- **Window Size** - The items in this menu allow you to resize your window to certain ranges. The ranges are divided into Height, Width, and Size (both height and width). Within these ranges you can select how you wish to resize to the ranges.

# Chapter 5. Using the GNOME Panel

## Introduction

The Panel is the heart of the GNOME interface and acts as a repository for all of your system applications, applets, and the Main Menu. The Panel is also designed to be highly configurable. The Panel gives you a place that always contains menus and applications as you want them to be.

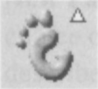
## The Basics

Using the GNOME Panel is very simple and will come easily to anyone who has used a graphical based operating system. You may add new panels, add applications to the panel, and add various applets. All of these functions and more will be described in this section.

## Using the Main Menu

To start using any pre-loaded application press the Main Menu Button. The Main Menu has the picture of the stylized foot and on first use is on the bottom left of the screen. You should release the mouse button after pressing the Main Menu button so that you can take advantage of other features in the Main Menu such as right mouse clicks and drag and drop from the menu.

**Figure 5-1. The Main Menu Button**

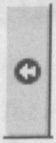


The Main Menu is the starting point for all of the applications on your system. Later in this manual you will learn how to customize the Main Menu to suit your work environment, but for now you can use the menu that is established when you install GNOME. The Main Menu works like any other menu you might have used in other graphical desktop environments. Simply press the Main Menu Button and select from the menu that pops up from the button.

## Hiding the Panel

At any time you may hide the GNOME Panel by pressing the Hide Button

**Figure 5-2. The Hide Button**



This will hide the GNOME Panel in the direction of the arrow on the Hide Button. There are hide buttons on both sides of a Panel so you can hide it in either direction.

You may decide that you want the Panel to hide on its own when you are not using it. This can be a helpful function if you are unable to run your system in a high resolution. You can find out how to autohide the Panel in Chapter 8.

## Moving and Adding Panels

Any Panel you have on your desktop can be moved by using the middle mouse button, or by simultaneously pressing the left and right mouse buttons, to drag the panel to the desired edge of your screen. If you do not have a middle mouse button or did not configure your mouse to emulate a middle button you may also move a Panel by changing its location in the Panel Configuration dialog. You can read more in Chapter 8 of this documentation.

You may also add a new Panel to your desktop by selecting the **Add New Panel** from the **Main Menu | Panel** menu. You will be given a choice of Edge or Corner Panels. Both of these Panel types are described below.

- Edge Panel - An Edge Panel is exactly like the main Panel that starts up with GNOME. By selecting this type of panel you may add a new Panel to another edge of your screen to give yourself more functionality.
- Corner Panel - The Corner Panel is a small Panel that will not stretch to the extent of the edge of the screen it is on. The Corner Panel will, however, stretch to the extent of icons and applets it contains. The hide buttons work just a bit differently with Corner Panels. The hide button closest to the edge of your screen will hide

the Panel as usual but the other hide button will send the whole panel to the opposite edge. When the latter move is made it will not hide the Panel since it is changing the side of the screen it resides on. If you want to hide it you will have to press the hide button once again.

At any time you can change the current panel to the opposite type by selecting either the **Convert to edge panel** or the **Convert to corner panel** from the pop-up menu. The selection that is available depends on which type of panel you right mouse click on. The selection displayed will be the opposite of the current panel.

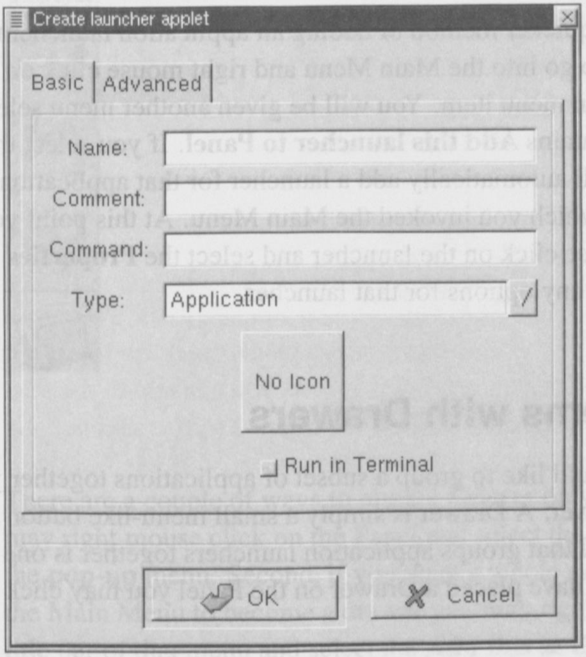
# Adding Applications and Applets to the Panel

## Adding Application Launchers

If you would like to add an Application Launcher (an icon that starts a particular application) to the Panel, right mouse click the Panel and select **Add New Launcher** from the **pop-up**

After selecting the **Add New Launcher** menu item you will see a dialog which will allow you to set the properties for the application launcher you wish to add.

**Figure 5-3. The Create Launcher Dialog**


Create launcher applet
Basic
Advanced
Name:
Comment:
Command:
Type:
Application
No Icon
Run in Terminal
OK
Cancel

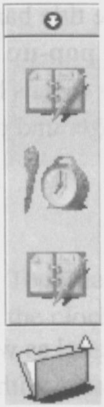
In the Create launcher applet dialog you may add a name for your launcher, a comment, the command line to launch the application, and define the application type. You may also press the icon button and choose an icon to represent the application from the icon picker. If no icon is chosen a default icon will be used.

Another, quicker method of adding an application launcher to the Panel is to go into the Main Menu and right mouse click on an application menu item. You will be given another menu selection which contains **Add this launcher to Panel**. If you select this menu item it will automatically add a launcher for that application to the Panel in which you invoked the Main Menu. At this point you may right mouse click on the launcher and select the **Properties** menu item to change any options for that launcher.

## Grouping Items with Drawers

If you would like to group a subset of applications together you may use a Drawer. A Drawer is simply a small menu-like button that sits on your panel that groups application launchers together is one place. Once you have placed a Drawer on the Panel you may click on it to raise the menu of applications and click again to lower them.

**Figure 5-4. A Drawer Running on the Panel**



There are a couple of ways to place a Drawer on your Panel. First you may right mouse click on the Panel and select the **Add drawer** from the **pop-up** menu. Second, if you want a whole subset of menus from the Main Menu to become a drawer you may right mouse click on the title bar of that menu and select the **Add this as drawer to panel** from the **pop-up menu**.

You can add menus to your panel in the same way you add Drawers. Menus are very similar to Drawers except that they do not use large icons to represent application launchers, instead they use a style similar to the Main Menu, i.e. small icons and the application name. You may add a menu by right mouse clicking on the title bar of a menu and select the **Add this as menu to panel** from the **pop-up menu**. You may also add system directories to the Panel as menus by dragging a directory out of the GNOME File Manager and dropping it on the Panel.

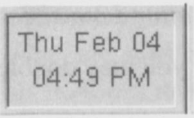
## Adding Applets

There are many applets which you can add to the Panel as well. Applets are small applications which can perform tasks within the Panel itself. There are many applets you can add to the Panel and these are covered in more detail in Chapter 12 of this manual. As an example of how to add an applet you can add another clock applet to your Panel. To add the clock applet to your Panel:

- Right mouse click on the Panel
- From the **pop-up** menu choose the **Add new applet** menu item.
- This will bring up more levels of **pop-up** menus.

- Choose the **Utility | Clock** menu item.
- The Clock will be added to your Panel.

**Figure 5-5. The Clock Applet**



Thu Feb 04
04:49 PM

To remove the clock applet you added you can right mouse click on the clock and select **Remove from panel** from the **pop-up** menu.

## Running Applications

There are many ways to launch applications within GNOME. Remember that one of GNOME's strong points is that it allows you to start and control applications using only an easy-to-use graphical interface. There are many ways to start the applications you wish to use:

As you saw in the previous section you may use the Main Menu to find applications which have been pre-loaded or you provided using the Menu Editor. You can read more about the Menu Editor in the Chapter 9.

You may also add application launchers from the Panel which was covered in the section called *Adding Application Launchers*.

If you are using the GNOME File Manager you may double click on any executable file and it will run.

You may use the GNOME Run program to launch any application. To use it select the **Run program** menu item from the **Main Menu**. This will launch a simple dialog which allows you to type in the command for launching the application. For example, if you wish to start the *Emacs* editor and it is not in a menu or on your panel you may start the GNOME Run Program and type **emacs** in the text box on the dialog.

## Logging Out of GNOME

GNOME has a couple of helpful methods for Logging out. You may either use the **Logout** menu item or the Logout button.

The **Logout** menu item is the first menu item you will find in the **Main Menu**. Simply select the **Logout** menu item and you will be prompted on whether you would like to log out or not. Select Yes and your GNOME session will end.

If you would like, you may add the Logout button to the Panel. This is just another method for logging out, it does not provide you any other functionality than the **Logout** menu item other than a pretty button. To add the Logout button to the Panel right mouse click on the Panel and select the **Add logout button** menu item from the **pop-up** menu. Once the button is there you may press it to log out.

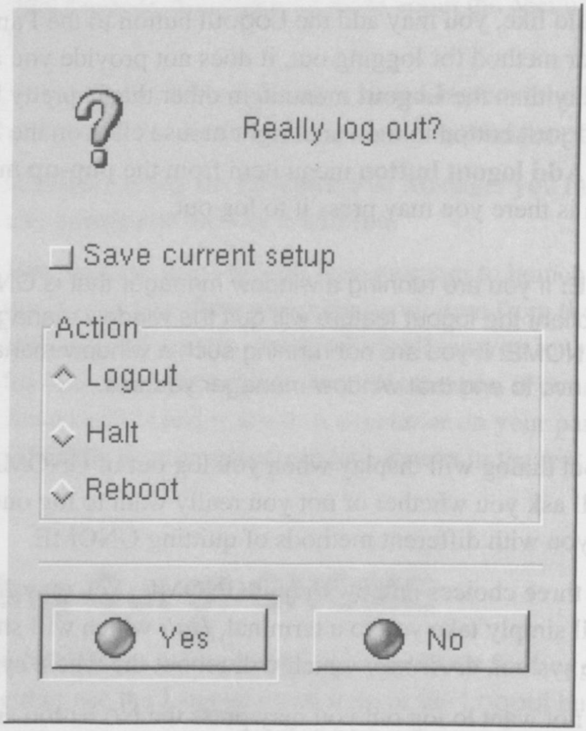
> **NOTE:** If you are running a window manager that is GNOME compliant the logout feature will quit the window manager as well as GNOME. If you are not running such a window manager you will have to end that window manager yourself.

The Logout dialog will display when you log out of GNOME. This dialog will ask you whether or not you really want to log out. It also provides you with different methods of quitting GNOME.

You have three choices on how to quit GNOME. You may *Logout* which will simply take you to a terminal, *Halt* which will shut down the whole system, or *Reboot* which will reboot the whole system.

If you do not want to log out you may press the No button and you will be returned to your GNOME session.

**Figure 5-6. The Logout Dialog**



Really log out?

☐ Save current setup

Action

● Logout

○ Halt

○ Reboot

Within the Logout Dialog there is one option you may choose before you leave GNOME.

If you would like to save your current setup you may select the *Save current setup* checkbox. This will save which programs you have open, and the configuration of your Panel.

# Chapter 6. The GNOME Desktop

## Introduction

The GNOME Desktop provides you with all the functionality of any traditional operating system desktop. You can drag files, programs and directory folders to the desktop; you can also drag those items back into GNOME-compliant applications.

> **IMPORTANT:** The GNOME Desktop is actually provided by a backend process in the GNOME File Manager. If, for any reason, that backend process has stopped running you may start the GNOME File Manager again and your desktop will be restored. If you do have to do this you will not need to keep the GNOME File Manager window open to enable the desktop.

## Using the Desktop

Using the Desktop is as simple as dragging items you wish to use routinely to the desktop. The default desktop will include a folder of your home directory (/home/[user name]). By default the GNOME File Manager window will also appear for you to access other areas of your system.

To utilize drag and drop you need to be using either a GNOME compliant application or a Motif application. GNOME is compliant with Motif drag and drop so you will find it works with many applications you already have installed.

All items that are stored on your desktop are located in the following directory:

```
$/home/[user name]/.gnome-desktop/
```

This is helpful to remember when you want an item to appear on your desktop that you can not utilize drag and drop with.

Once you have started GNOME you will notice that any drives you have connected to your system will be shown on your desktop with the appropriate icons. You may mount and access these drives utilizing these icons.

> **IMPORTANT:** You must have permission to mount the device shown on your desktop before you can utilize these icons. You must have the root password to accomplish this. If you do not have this password you should consult your system administrator.

Gaining mount access can be done quite easily if you have *linuxconf* installed on your machine. Just select the drive you want to access in the *Access local drive* section. In the *Options* tab select the *User Mountable* option. Your drive will now be mountable by users.

If you do not have *linuxconf* you must edit your */etc/fstab* to include user access. This is done by adding user access to the drive. For Example:

If your fstab file looks like this:

```
/dev/cdrom /mnt/cdrom iso9660 exec,dev,ro,noauto 0 0
```

Add "user" to the fourth column:

```
/dev/cdrom /mnt/cdrom iso9660 user,exec,dev,ro,noauto 0
```

There could be some security risks involved with this depending on your system and work environment. Please consult your system administrator before making any drive user mountable.

Once you have permission to mount a drive you may right mouse click on the drive icon on your desktop. This will bring up a small pop-up menu.

You may select **Mount device** to mount it and **Eject device** to eject it. Once it is mounted you may either double-click it or choose **Open** from the pop-up menu to open and GNOME File Manager window to view the contents of the device.

If you are missing any drives that you might have added to your machine you may right mouse click on an empty space on the desktop and choose the **Rescan Mountable Devices** menu item from the **pop-up** menu.

## Desktop Areas

Desktop areas allow you to keep a well organized system when you have many tasks to perform at one time. Just like adding a new desk when you have too much for one, desktop areas allow you to move to another area to launch more programs.

GNOME is aware of desktop areas even though they are controlled by another software program called the 'window manager'. You can set the number of desktop areas within the configuration of the window manager you are using. If you are using the default window manager or your window manager has a graphical configuration tool you may be able to launch it from the Window Manager Capplet. You may read more about this Capplet in the section called *Window Manager*

*Capplet* in Chapter 10

**IMPORTANT:** Most window managers will give you the option of having multiple desktops which are different from desktop areas. Desktop areas are virtual extensions of one desktop whereas multiple desktops are actually separate.

The default setup of GNOME is to use desktop areas with only one desktop. The reason for this is because in older applications, such as those which use Motif, users can experience problems with some drag and drop functionality across desktops.

## Other Desktop Menus

There are a few desktop menus you may choose from in GNOME. These menus are accessed by making a right-button mouse click on any clean space on the desktop. This will bring up the **pop-up** menu which contains a few items:

- **New | Terminal** - This will launch a new GNOME Terminal window that will automatically navigate to the ~/.gnome-desktop directory.

- **New | Directory** - This allows you to create a new directory on your desktop. This can be a convenient tool to use if you wish to clean up your desktop by placing files in a new directory.
- **New | Launcher** - This allows you to place a new application launcher on the desktop. When you select this menu item it will launch an **Application Launcher** dialog that allows you to specify which application and its properties.
- **New | [application]** - Some applications may put items for you in the **New** menu. For example, the Gnumeric spreadsheet will put a **New Gnumeric Spreadsheet** menu item in the **New** menu so you can start up a new spreadsheet easily.
- **Arrange Icons** - This will automatically arrange your desktop icons.
- **Create New Window** - This will launch a new GNOME File Manager window displaying your Home directory.
- **Rescan Mountable Devices** - This will rescan the mountable devices on your machine and display an icon for any new device it might find.
- **Rescan Desktop** - This will rescan the files in your ~/.gnome-desktop directory.

# Chapter 7. The GNOME File Manager

## Introduction

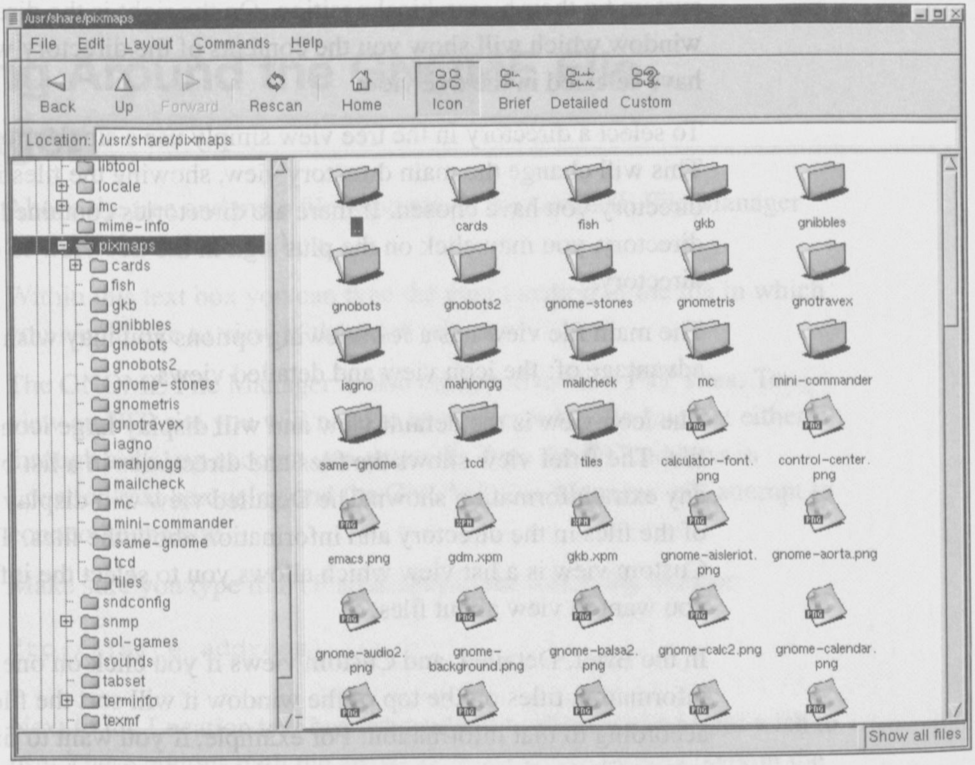
GNOME includes a file manager that allows you to manipulate the files on your system in a comfortable, powerful, graphical environment. This File Manager is known as GMC for GNU Midnight Commander. GMC is based on the Midnight Commander file manager which can be run in a terminal.

Midnight Commander has long been known for its power and ease of use. GMC has taken the power and ease of use from MC and added the GNOME graphical frontend.

As mentioned in the previous chapter, the GNOME File Manager provides the desktop functionality for GNOME. The GNOME File Manager also provides a place to manipulate files on your system by using the GNOME File Manager window.

**Figure 7-1. GNU Midnight Commander - The GNOME File**

**Manager**



Location: /usr/share/pixmaps

/usr/share/pixmaps
File
Edit
Layout
Commands
Help
Back
Up
Forward
Rescan
Home
Icon
Brief
Detailed
Custom
libtool
locale
mc
mime-info
pixmaps
cards
fish
gkb
gnibbles
gnobots
gnobots2
gnome-stones
gnometris
gnotravex
iagno
mahjongg
mailcheck
mc
mini-commander
same-gnome
tcd
tiles
sndconfig
snmp
sol-games
sounds
tabset
terminfo
texmf
..
cards
fish
gkb
gnibbles
gnobots
gnobots2
gnome-stones
gnometris
gnotravex
iagno
mahjongg
mailcheck
mc
mini-commander
same-gnome
tcd
tiles
calculator-font.png
control-center.png
emacs.png
gdm.xpm
gkb.xpm
gnome-aisleriot.png
gnome-aorta.png
gnome-audio2.png
gnome-background.png
gnome-balsa2.png
gnome-calc2.png
gnome-calendar.png
Show all files

There are two main windows within the GNOME File Manager. On the left is the tree view which represents all of the directories on your system by their hierarchical position. On the right is the directory window which will show you the contents of the directory which you have selected in the tree view.

To select a directory in the tree view simply use a single mouse click. This will change the main directory view, showing the files in the directory you have chosen. If there are directories contained within the directory, you may click on the plus sign in the tree view to expand the directory.

The main file view has a few viewing options you may wish to take advantage of: the icon view and detailed views.

The icon view is the default view and will display large icons for each file. The Brief view shows the files and directories in a list but without any extra information shown.The Detailed view will display a list view of the files in the directory and information about the files. The Custom view is a list view which allows you to select the information you want to view about files.

In the Brief, Detailed, and Custom views if you click on one of the information titles on the top of the window it will sort the files according to that information. For example, if you want to find the largest files in the directory you can click on the Size title and the files will be sorted by size from largest to smallest. One more click on the

Size title will change the sorting from smallest to largest.

## Moving Around the GNOME File Manager

Above the tree and main file windows in the GNOME File Manager there is a Location text box.

Within this text box you can type the path location of the file in which you would like to view in the main window.

The GNOME File Manager is also equipped to view FTP sites. To view an FTP site you will need to be connected to the Internet either through a dial up account or a network. Type the FTP address in Location text box using and the GNOME File Manager will attempt to connect to the site.

Make sure you type in FTP addresses in the following manner:

```
ftp://[site address]
```

Next to the Location text box are navigation buttons you might wish to use. These buttons with the arrow icons allow you to move within the directories adjacent to the one you are in. The left button will take you to the previous directory you were in, the middle button will take you up one level in the directory hierarchy, and the right button will take you to the next directory if you have just moved backwards.

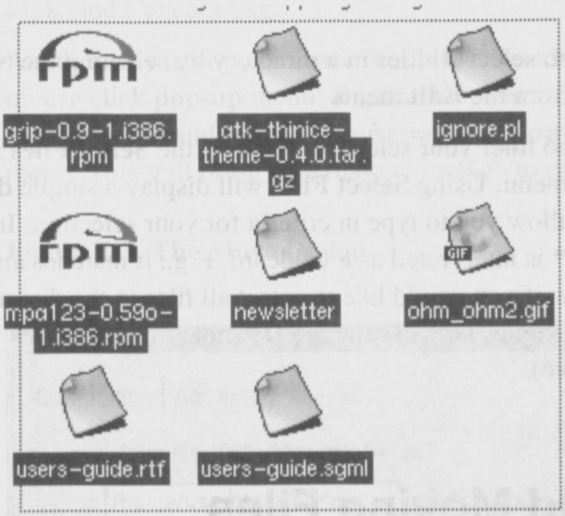
> **TIP:** You can open a secondary window by using your middle mouse button on any directory. Press the middle mouse button (or both left and right mouse buttons if you have emulation) on a directory in the main window and a new window will open showing the contents of the directory you clicked on.

## Selecting Files

Selecting files is done with your mouse by clicking on the file or files in the GNOME File Manager. The file that is selected will then highlight to show you that it has been selected.

There are a couple of ways to select more than one file. One way is to use the "rubber band" select by clicking and dragging the mouse cursor around several files. This action will produce a small dotted line, the "rubber band", to show you the area in which files will be selected.

**Figure 7-2. "Rubber Band Select"**


grip-0.9-1.i386.rpm
atk-thinice-theme-0.4.0.tar.gz
ignore.pl
mpa123-0.59o-1.i386.rpm
newsletter
ohm_ohm2.gif
users-guide.rtf
users-guide.sgml

If you wish to be more selective about the files you are choosing, or the files you need do not reside next to one another, you may use the **CTRL** key to keep the files you have selected while you are selecting more. This works by selecting a file, pressing and holding the **CTRL** key and selecting another file. While the **CTRL** key is pressed you will be able to add to the "list" of files that are selected. Once you have selected multiple files by either method you may copy or move the files.

You may also select all files in a directory by selecting the **Select All** menu item from the **Edit** menu.

You may also filter your selection by using the **Select Files** menu item in the **Edit** menu. Using **Select Files** will display a simple dialog which will allow you to type in criteria for your selection. In this field, the symbol * is interpreted as a wildcard, E.g., it matches any string. For example, if you would like to select all files in the directory that start with the letter **D**, you can type **D*** (note that filenames in Unix are case-sensitive).

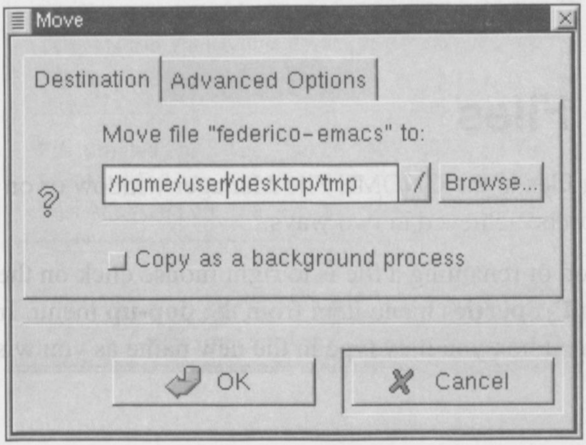
## Copying and Moving Files

The default action for drag and drop in the GNOME File Manager is to move files. But you can also use drag and drop to copy a file by pressing the **SHIFT** key while dragging the file(s). This will work the same for any files you drag to the desktop.

You may also toggle a menu which lets you decide what action to perform with a drag by using the middle mouse button to drag a file or pressing the **ALT** Key while dragging a file. Once you release the drag you will get a pop-up menu which contains the options Copy, Move, Link, and Cancel Drag.

Another way to copy or move files is to take advantage of the right mouse click **pop-up** menu. Right mouse click on the file you want to copy or move and select **Move/rename** or **Copy** from the **pop-up** menu. This will bring up a dialog in which to perform these tasks.

**Figure 7-3. The Move Dialog**



Move file "federico-emacs" to:

/home/user/desktop/tmp

☐ Copy as a background process

To use the move dialog you simply type in the path where you wish to move the file. If you want to rename the file you may type the new name of the file in the path string. The Copy dialog looks and works exactly the same way as the Move/rename dialog.

If the file you are moving has a symbolic link associated with it – that is, a virtual link to where the file actually resides – you may select the *Advanced Options* tab and select *Preserve symlinks*. Selecting this will make sure the link is preserved despite the move.

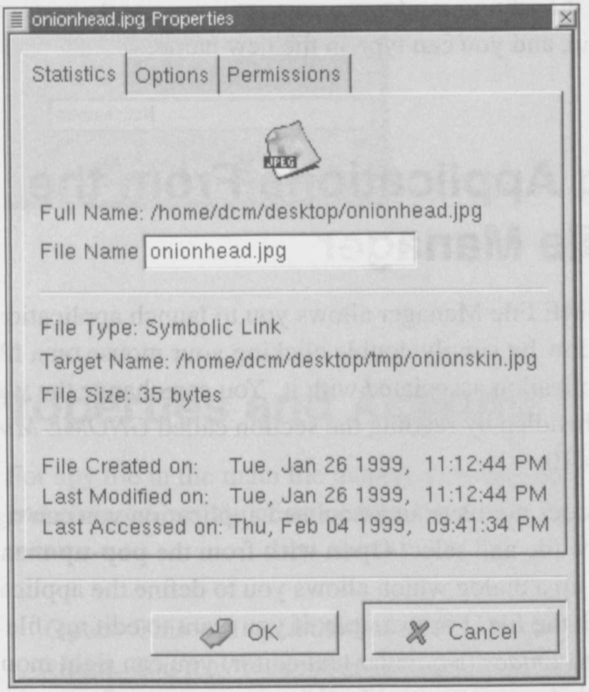
It is recommended that you use this method of moving a file if it has a symbolic link associated to it.

## Renaming Files

Renaming files in the GNOME File Manager window or on the desktop can be achieved in two ways.

One method of renaming a file is to right mouse click on the file and choose the **Properties** menu item from the **pop-up** menu. In the Filename text box you may type in the new name as you wish it to appear.

**Figure 7-4. File Properties**



onionhead.jpg Properties
Statistics
Options
Permissions
JPEG
OK
Cancel

Full Name: /home/dcm/desktop/onionhead.jpg

File Name: onionhead.jpg

File Type: Symbolic Link

Target Name: /home/dcm/desktop/tmp/onionskin.jpg

File Size: 35 bytes

File Created on: Tue, Jan 26 1999, 11:12:44 PM

Last Modified on: Tue, Jan 26 1999, 11:12:44 PM

Last Accessed on: Thu, Feb 04 1999, 09:41:34 PM

A shortcut method to rename a file is to slowly double click on the file.

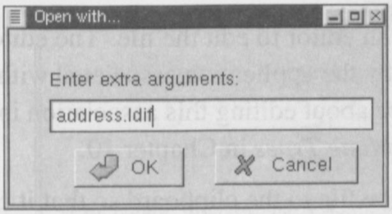
Make sure this is slow so you do not launch the file but you simply highlight and then click again. At this point the name of the file will enter into the editing mode, your mouse cursor will change to an editing line, and you can type in the new name.

## Launching Applications From the GNOME File Manager

The GNOME File Manager allows you to launch applications from the main window by simply double clicking your mouse on a file which has an application associated with it. You can change the way file types are handled by reading the section called *GNOME Mime Types* in Chapter 10

If the file does not have an associated application you can right mouse click on the file and select **Open with** from the **pop-up** menu. This will bring up a dialog which allows you to define the application which will launch the file. For example, if you want to edit my file names test.txt with *Emacs* (a popular text editor) you can right mouse click on test.txt and choose **Open with**. When you get the Open with dialog box simply type in emacs in front of the test.txt file name. When you press OK *Emacs* will open the file.

**Figure 7-5. The Open With Dialog**



Enter extra arguments: address.ldif

# File Properties and Actions

For any file in the main file display you may right mouse click on it and choose a variety of properties and actions for it from the **pop-up** menu:

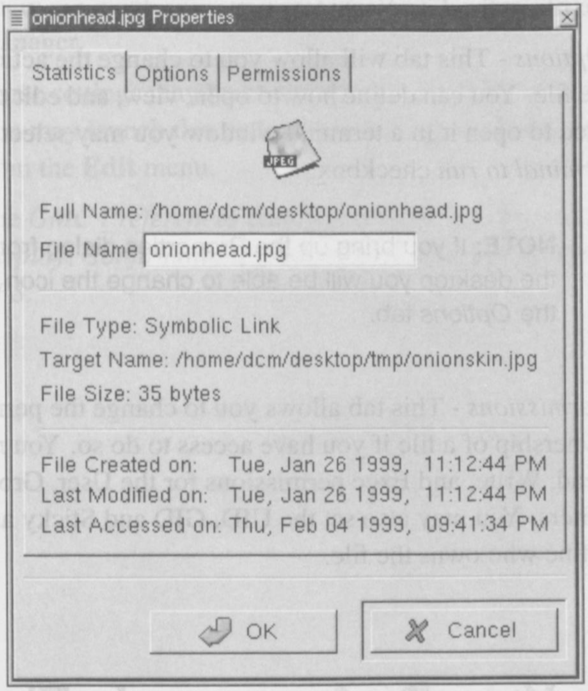
- **Open** - This will open the file with the proper application associated with it. You may read more about editing these associations in the section called *GNOME Mime Types* in Chapter 10.
- **Open With** - You may open a file with any application using this menu item. You may read more about this in the section called

*Launching Applications From the GNOME File Manager*.

- **View** - This will view the file with a basic text viewer.
- **Edit** - This will launch an editor to edit the file. The editor launched is determined by the application associated with that file type. You may read more about editing this association in the section called *GNOME Mime Types* in Chapter 10.
- **Copy** - This will copy the file to the clipboard so that it can be pasted elsewhere.
- **Delete** - This will delete the file.
- **Move** - This will bring up the *Move* dialog which will allow you to move the file. You can read more about this dialog and moving files in the section called *Copying and Moving Files*.
- **Properties** - The Properties menu item will launch the properties dialog. The Properties dialog allows you to edit and view the properties for the selected file.

  The Properties dialog consists of three tabs, Statistics, Options, and Permissions.

Figure 7-6. File Properties


onionhead.jpg Properties
Statistics
Options
Permissions
JPEG
OK
Cancel

Full Name: /home/dcm/desktop/onionhead.jpg

File Name: onionhead.jpg

File Type: Symbolic Link

Target Name: /home/dcm/desktop/tmp/onionskin.jpg

File Size: 35 bytes

File Created on: Tue, Jan 26 1999, 11:12:44 PM

Last Modified on: Tue, Jan 26 1999, 11:12:44 PM

Last Accessed on: Thu, Feb 04 1999, 09:41:34 PM

- *Statistics* - This tab will show you the file information including the name, type, size, and history. You may change the name of the file in the *File Name* text box.
- *Options* - This tab will allow you to change the action options for the file. You can define how to open, view, and edit the file. If you need to open it in a terminal window you may select the *Needs terminal to run* checkbox.

  **NOTE:** If you bring up the Properties dialog from an icon on the desktop you will be able to change the icon for that file in the *Options* tab.

- *Permissions* - This tab allows you to change the permissions and ownership of a file if you have access to do so. You may select Read, Write, and Exec permissions for the User, Group, and Others. You may also set the UID, GID and Sticky as well as define who owns the file.

## Changing Your Preferences in The File

## Manager

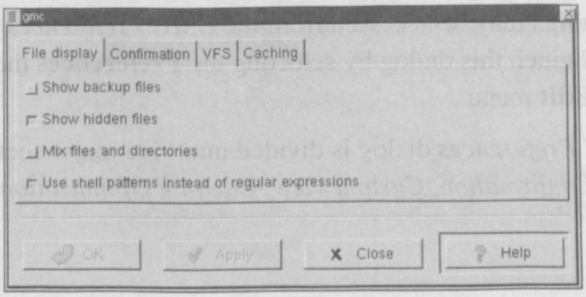
There are many settings you can configure for the GNOME File Manager.

These settings may be accessed from the *GMC Preferences* dialog. You may launch this dialog by selecting the **Preferences** menu item from the **Edit** menu.

The *GMC Preferences* dialog is divided into Five major sections: *File Display*, *Confirmation*, *Custom View*, *Caching Optimizations*, and *VFS*.

## File Display

**Figure 7-7. File Display Preferences**


gmc
File display
Confirmation
VFS
Caching
OK
Apply
Close
Help

☐ Show backup files

☐ Show hidden files

☐ Mix files and directories

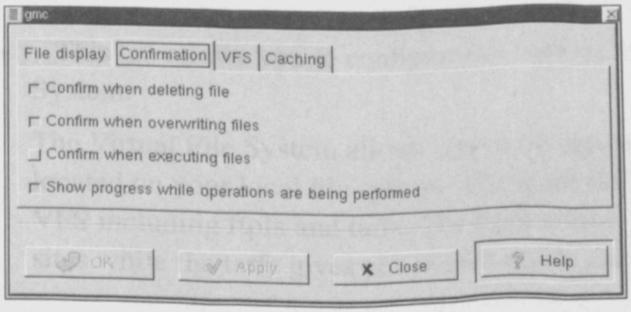
☐ Use shell patterns instead of regular expressions

- The *File Display* tab allows you to change the way files are displayed in GMC.
  - *Show backup files* - This will show any backup file which might be on your system.
  - *Show hidden files* - This will show all "dot files" or files that begin with a dot. This files typically include configuration files and directories.

- *Mix files and directories* - This option will display files and directories in the order you sort them instead of always having directories shown above files.
- *Use shell patterns instead of regular expressions* - This option is for advanced users only. If you are unfamiliar with Regular Expressions you should not use this option. If you are familiar with how to create regular expressions you may select this option to use them in your sorts and filters.

## Confirmation

**Figure 7-8. Confirmation Preferences**



☑ Confirm when deleting file

☑ Confirm when overwriting files

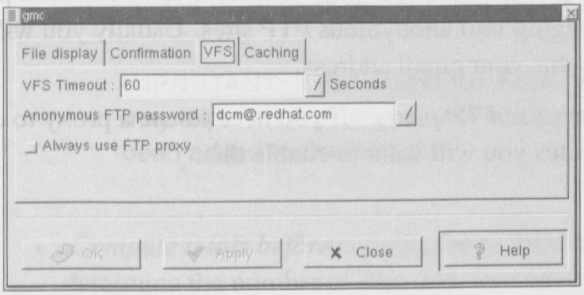
☐ Confirm when executing files

☑ Show progress while operations are being performed

- This tab allows you to change which functions ask for your confirmation before continuing.
    - *Confirm when deleting file* - This will bring up a confirmation screen before deleting a file.
    - *Confirm when overwriting files* - This will bring up a confirmation screen before overwriting a file.
    - *Confirm when executing files* - This will bring up a confirmation screen before executing a file.
    - *Show progress while operations are being performed* - This will bring up a progress bar while certain operations are being performed such as copying, moving, deleting, etc.

## VFS

**Figure 7-9. VFS Preferences**


gmc
File display
Confirmation
VFS
Caching
OK
Apply
Close
Help

VFS Timeout : 60 Seconds

Anonymous FTP password : dcm@.redhat.com

☐ Always use FTP proxy

- This tab allows you to configure the options for your Virtual File System.

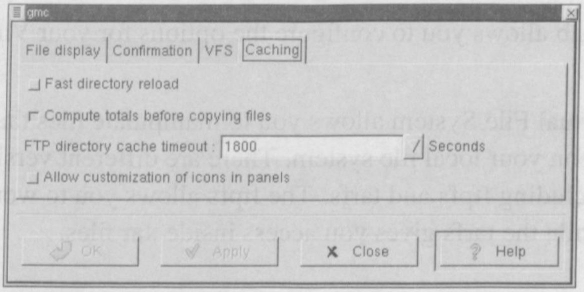
  The Virtual File System allows you to manipulate files that are not located on your local file system. There are different version of the VFS including ftpfs and tarfs. The ftpfs allows you to work on FTP sites while the tarfs gives you access inside .tar files.

  **NOTE:** The .tar file is the standard UNIX archive format

- *VFS Timeout* - This will determine how long you will be connected to any VFS without activity. The timeout is measured in seconds.
- *Anonymous FTP password* - This allows you to set a password for logging into anonymous FTP sites. Usually you will want to make this your email address.
- *Always use FTP proxy* - If you need to use a proxy to connect to FTP sites you will want to enable this.

## Caching

**Figure 7-10. Caching Preferences**



☐ Fast directory reload

☑ Compute totals before copying files

FTP directory cache timeout : 1800 Seconds

☐ Allow customization of icons in panels

- This tab allows you to configure items that will enhance the speed of GMC by using caching.
  - *Fast directory reload* - This option will store directory information in cache so that it can load faster.

    > **IMPORTANT:** If you enable the *Fast directory reload* you may experience problems with not seeing new files that have been added to directories.

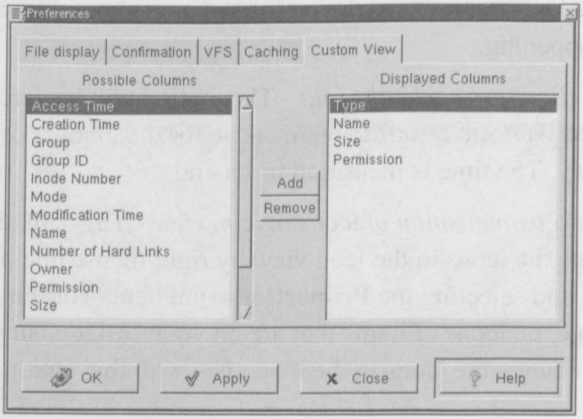
  - *Compute totals before copying files* - This will make GMC determine the number of files you are copying before it performs the task so that it can give you information about the process as its happening.
  - *FTP directory cache timeout* - This option will keep recently visited FTP site information in cache for the amount of time you specify. The time is measured in seconds.
  - *Allow customization of icons in icon view* - This will allow you to change the icons in the icon view by right mouse clicking on them and selecting the **Properties** menu item. You can always change the icons of items that are on your desktop but you can only change the icons in the icon view with this option turned on.

> **IMPORTANT:** Turning on the *Allow customization of icons in icon view* function may result in a slower system.

## Custom View

The Custom View dialog allows you to set the way you would like the Custom View to look in the GNOME File Manager.

**Figure 7-11. The Custom View Dialog**


Preferences
File display
Confirmation
VFS
Caching
Custom View
Add
Remove
OK
Apply
Close
Help

Possible Columns

- Access Time
- Creation Time
- Group
- Group ID
- Inode Number
- Mode
- Modification Time
- Name
- Number of Hard Links
- Owner
- Permission
- Size

Displayed Columns

- Type
- Name
- Size
- Permission

There are two main columns in the *Custom View*, the *Possible Columns* and the *Displayed Columns*.

The *Possible Columns* list includes all of the information types that can be displayed. If you would like to include on you may press the Add button and it will be added to the *Displayed Columns* list.

The *Displayed Columns* list shows you the current information types that will be included in your Custom View. If you wish to remove any you may press the Remove button.

If you would like to re-arrange the items in the *Displayed Columns* list you may drag them to the desired location with your mouse.

# Menu Guide to the GNOME File Manager

In this section each menu item in the GNOME File Manager will be described.

> **Tip:** All menus in the GNOME File Manager are enabled with the tear-away feature. If you would like any menu to "float" on the desktop in its own window simply select the perforation line at the

top of the menu.

- **File** - The File Menu contains items associated with files and higher level activity.
  - **New Window** - This will open a new File Manager Window.
  - **Open** - This will open the file you have selected with your mouse cursor.
  - **Copy** - This will launch the Copy dialog to enable you to copy the selected file to a destination you choose.
  - **Move** - This will launch the Move/rename dialog to enable you to move or rename the selected file to a destination you choose.
  - **Delete** - This will delete the file you have selected.
  - **Close** - This will close the GNOME File Manager
- **Edit** - The Edit menu contains items that are associated with editing and selecting files.
  - **Select All** - This will select all of the files in the directory you are currently in in the GNOME File Manager.

  - **Select Files** - This will launch a simple dialog box which will allow you to specify a file selection range. For Example, if you wish to select all files beginning with the letter D you can simple type d* and press OK.
  - **Invert Selection** - This will invert the current selection. For example, if you have 7 files selected in a directory with 10 files, selecting Invert Selection will select the three remaining files and unselect the 7 files that were previously selected.
  - **Rescan Directory** - This will rescan the current directory in case the files in the directory have changed.
  - **Preferences** - This will launch the Preferences dialog so that you can customize the GNOME File Manager.

- **Layout** - This menu contains items that are associated with the layout in GNOME File Manager.

  - **Sort By** - This will launch a dialog box which will allow you to select how you wish the files to be sorted in the current directory. You may sort by one of the following:

    Name

    File Type

Size

Time Last Accessed

Time Last Modified

Time Last Changed

- **Filter View** - This will bring up a simple dialog which allows you to only view files with certain attributes. For example, if you wish to only view files in the directory that start with the letter D you can type d* into the dialog and press OK. If you wish to see all files again you will need to launch the Filter View dialog again and clear the dialog or type in a *.
- **Icon View** - Selecting this will display the files in the main view as large icons.
- **Partial View** - Selecting this will display the files in the main view as a list with only file names.
- **Full View** - Selecting this will display the files in the main view as a list with all file information.
- **Custom View** - The **Custom View** mane item switches your view to the Custom View which is a list view displaying the information about your files that you specify. To customize the Custom view you will need to use the *Custom View Editor* in the *Preferences* dialog. You may read more about the *Preferences*

dialog in the section called *Changing Your Preferences in The File Manager*.

- **Commands** - The Command menu contains items that are commands to run on files in the GNOME File Manager.
  - **Find File** - Find File brings up a dialog which allows you to search for particular files on your system.
  - **Edit mime types** - This option will launch the GNOME Control Center Capplet that allows you to edit Mime Types for GNOME. Mime types determine, among other things, what application will handle particular file types. You can read more about mime types in the section called *GNOME Mime Types* in Chapter 10
  - **Run Command** - This menu item allows you to run a command from GMC.
  - **Run Command in panel** - This menu item lets you run preloaded commands or commands you specify within the directory that you are currently in. Such commands might be to find SUID or SGID programs, etc.
  - **Exit** - This will allow you to exit out of the GNOME File Manager.

**IMPORTANT:** This will exit all GNOME File Manager processes which include the GNOME Desktop. If you exit you will lose all functionality on your desktop. This option is not recommended.

## A Drag and Drop Tour of GNOME

There are many tips and tricks to the Desktop in GNOME. The Drag and Drop functionality extends to many areas of GNOME making it easy to interconnect GNOME in many interesting ways. Below is a series of tips and tricks to using GNOME Drag and Drop. This is a good tour of GNOME and will show you how to utilize GNOME to its fullest extent.

- Drag a Color onto the Panel - Whenever you have a color selector displayed you may drag a color from the selected color bar to the Panel and it will change the Panel to that color.
- Drag a Pixmap to the Background Selector - If you would like to change the background to an image, you can drag that image from your GNOME File Manager to the Monitor Image in the Background Capplet of the Control Center and it will change to that

image.

- Drag to an Application - Many GNOME compliant applications will accept drag and drop. If you would like to open a file in Gnumeric, a GNOME compliant spreadsheet application, you may simply drag the file from the GNOME File Manager onto Gnumeric and it will open the file. The same is true for applications built using Motif. You may drag a saved URL onto Netscape 4x and it will open the URL. This can be very useful if you are working within the GNOME File Manager and wish to quickly open a file.
- Adding an Application Launcher to the Panel - If you would like to add an application launcher to the Panel you may drag and drop any executable file from the GNOME File Manager, or the Desktop, onto the Panel. This will display the Create Launcher applet dialog box which will allow you to select a name and an icon for that launcher.
- Dragging Files - There are many ways to use drag and drop to help you manage your system. You can open two GNOME File Manager windows to two different directories then drag files between the two windows to copy, move, or link files. You can drag files from the File Manager to the desktop to make it more accessible. Use the middle mouse button or the right and left mouse buttons together and Drag a directory folder to the desktop. Choose the link option from the pop-up menu to make a link to the desktop. This will give

you a quick way to launch the File Manager to that directory.

- Dragging Directories - You can drag a directory out of the GNOME File Manger and place it on the Panel. This will create a new menu which allows you easy access to the files in that directory.
- You may drag any sub menu from the Main Menu to the panel and a new menu launcher is added to the panel. This allows easier access to that sub-set of menus.

# Chapter 8. Configuring the Panel

## Introduction

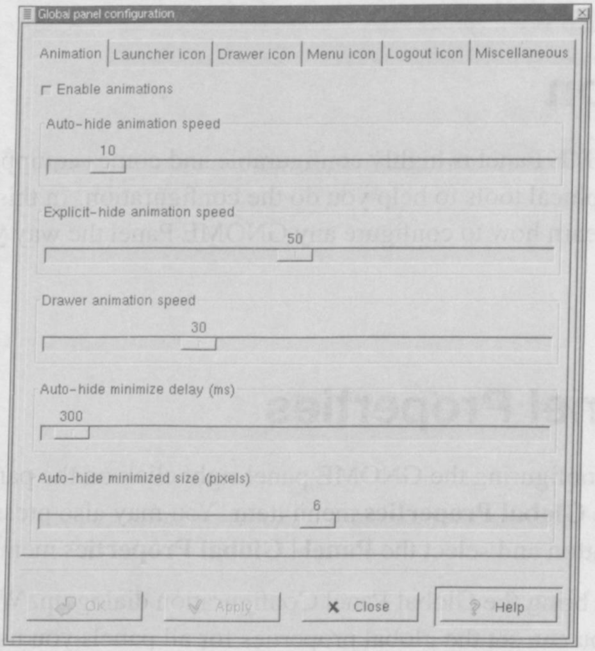
The GNOME Panel is highly configurable and comes equipped with many graphical tools to help you do the configuration. In this section you will learn how to configure any GNOME Panel the way you would like it.

## Global Panel Properties

To start configuring the GNOME panel right click on the panel and select the **Global Properties** menu item. You may also press the Main Menu button and select the **Panel | Global Properties** menu item.

This will bring the Global Panel Configuration dialog up. With this dialog you can set the global properties for all panels you use now and any panels you add in the future.

**Figure 8-1. The Global Panel Configuration Dialog**


Global panel configuration
Animation
Launcher icon
Drawer icon
Menu icon
Logout icon
Miscellaneous
OK
Apply
Close
Help

☐ Enable animations

Auto-hide animation speed: 10

Explicit-hide animation speed: 50

Drawer animation speed: 30

Auto-hide minimize delay (ms): 300

Auto-hide minimized size (pixels): 6

The Global Panel Configuration Dialog contains six tabs which help you configure the global properties of the GNOME Panel: Animation, Launcher Icon, Drawer Icon, Menu Icon, and Miscellaneous. Each of these tabs is explained below.

## Animation Tab

- *Enable animations* - This allows the animations configurable on this tab to be visible. The animations must be enabled to use the other features of this tab. The default position is on.
- *Auto-Hide Animation Speed* - If you have the panel hiding automatically this will control how fast it occurs.
- *Explicit-Hide Animation Speed* - This controls the hide speed when you press the Panel's Hide Button.
- *Drawer Animation Speed* - If you use a Drawer panel this will control how fast the drawer menu will raise.
- *Auto-Hide Minimize Delay(ms)* - If you have the Panel set to minimize automatically this will allow you to control how much time passes before it minimizes. The Panel will start the time count once the mouse is no longer over it. It will appear again when the mouse is passed to the area it occupies when up. This time is measured in milliseconds.

- *Auto-Hide Minimized Size(pixels)* - If you have the Panel hiding automatically this determines the number of pixels that will show while the Panel is minimized.

## Launcher icon Tab

- *Tiles enabled* - This checkbox will enable background tiles for all icons on the Panel.
- *Tile filename (up)* - This is the name and path of the image file you wish to use for the tile in the up position(inactive, not pressed) You may press the Browse button to search for the file. Tiles must be enabled to access this option.
- *Tile filename (down)* - This is the name and path of the image file you wish to use for the tile in the down position(active, pressed). You may press the Browse button to search for the file. Tiles must be enabled to access this option.
- *Border width (tile only)* - This determines the width of the border around an icon. This is very useful if you have an icon that would normally cover up a tile. You can set the border to a smaller size and still be able to see your tile.
- *Depth (displacement when pressed)* - This determines the depth an

icon will displace when pressed. Tiles must be enabled to access this option.

## Drawer icon Tab

- *Tiles enabled* - This checkbox will enable background tiles for all drawers on the Panel.
- *Tile filename (up)* - This is the name and path of the image file you wish to use for the tile in the up position(inactive, not pressed) You may press the Browse button to search for the file. Drawer tiles must be enabled to access this option.
- *Tile filename (down)* - This is the name and path of the image file you wish to use for the tile in the down position(active, pressed) You may press the Browse button to search for the file. Drawer tiles must be enabled to access this option.
- *Border width (tile only)* - This determines the width of the border around a tile. Drawer tiles must be enabled to access this option.
- *Depth (displacement when pressed)* - This determines the depth a tile will displace when pressed. Drawer tiles must be enabled to access this option.

## Menu icon Tab

- *Tiles enabled* - This checkbox will enable background tiles for the Main Menu button on the Panel.
- *Tile filename (up)* - This is the name and path of the image file you wish to use for the tile in the up position(inactive, not pressed) You may press the Browse button to search for the file. Menu tiles must be enabled to access this option.
- *Tile filename (down)* - This is the name and path of the image file you wish to use for the tile in the down position(active, pressed) You may press the Browse button to search for the file. Menu tiles must be enabled to access this option.
- *Border width (tile only)* - This determines the width of the border around a tile. Menu tiles must be enabled to access this option.
- *Depth (displacement when pressed)* - This determines the depth a tile will displace when pressed. Menu tiles must be enabled to access this option.

## Logout Icon Tab

- *Tiles enabled* - This checkbox will enable background tiles for all Logout buttons on the Panel.
- *Tile filename (up)* - This is the name and path of the image file you wish to use for the tile in the up position(inactive, not pressed) You may press the Browse button to search for the file. Logout button tiles must be enabled to access this option.
- *Tile filename (down)* - This is the name and path of the image file you wish to use for the tile in the down position(active, pressed) You may press the Browse button to search for the file. Logout button tiles must be enabled to access this option.
- *Border width (tile only)* - This determines the width of the border around a tile. Logout button tiles must be enabled to access this option.
- *Depth (displacement when pressed)* - This determines the depth a tile will displace when pressed. Logout button tiles must be enabled to access this option.

## Miscellaneous Tab

- *Tooltips enabled* - This enables tooltips for items on the panel. Tooltips are pop-up help dialogs that appear when you mouse is over an element on the panel.
- *Show Small Icons* - This will enable small icons in the Main Menu.
- *Show ... buttons* - This will enable three small dots to appear on Main Menu items that launch dialogs.
- *Show popup menus outside of panels* - This allows popup menus to appear away from the Panel when on. When toggle off the popups will appear over the Panel. This can be useful on smaller screens or cluttered desktops.
- *Keep menus in memory* - This will keep your menus in memory so that they do not rescan for added items. This can increase the speed of GNOME but may also result in you missing new items in your menu that are GNOME compliant.
- *Switched movement* - This allows launcher buttons on the panel to switch places with other icons when being moved.
- *Free Movement (doesn't disturb other applets)* - This feature locks the arrangement of your icons on the Panel. This is a good feature to use if you like the way your icons are arranged.

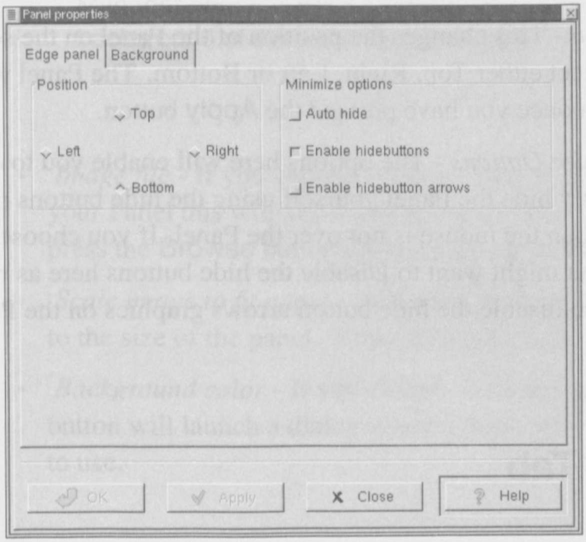
- *Prompt before logout* - This will bring up a yes/no dialog which asks you if you would really like to log out.
- *Raise panels on mouse-over* - If you are using a window manager that is not GNOME compliant it will not understand its relationship with the Panel. This can cause your Panel to be covered by applications. If you enable this feature you can have the Panel automatically raise when your mouse is over it.
- *Keep panel below windows* - If you are using a GNOME compliant window manager the window manager will understand its relationship with the Panel. If you choose this feature the window manager and GNOME will allow applications to appear over the Panel. This can be useful on smaller screens.
- *Close drawer if a launcher inside it is pressed* - By default drawers will remain open when you select an item within one. This can be annoying as the drawer will remain open until you close it with a mouse click. With this option selected drawers will close automatically when you select any item within one.
- *Applet padding* - This changes the amount of space (padding) between icons and applets.

## This Panel Properties

Each Panel's properties can be configured individually. To change the configuration of the active Panel, right mouse click on the Panel and select the **This panel properties** menu item from the **pop-up** menu. You may also press the Main Menu button and select the **Panel | This panel properties** menu item.

This will bring up the Panel properties dialog box. In this box you can change the properties for the active Panel.

**Figure 8-2. This Panel Properties Dialog**


Panel properties
Edge panel
Background
Position
Top
Left
Right
Bottom
Minimize options
Auto hide
Enable hidebuttons
Enable hidebutton arrows
OK
Apply
Close
Help

The Panel properties dialog contains two tabs to help you set the active Panel properties: Edge Panel and Background. Both of these tabs are explained below.

## Edge Panel Tab

- *Position* - This changes the position of the Panel on the screen. You may select either Top, Right, Left or Bottom. The Panel will change position once you have pressed the Apply button.
- *Minimize Options* - The options here will enable you to either Explicitly hide the Panel yourself using the hide buttons or Auto Hide when the mouse is not over the Panel. If you choose to Auto Hide you might want to Disable the hide buttons here as well. You may also disable the hide button arrows graphics on the Panel as well.

## Background Tab

- *Background* - These options allow you to change the background of the Panel itself. You may choose, if you wish, to have the standard, Pixmap, or Color background. The standard look for the Panel is determined by the GTK theme you are running at the time. The Pixmap option allows you to choose an image to tile or scale to the Panel. The Color option allows you to specify a particular color for the Panel.

**IMPORTANT:** An easier way to change the background of your panel is to drag and drop an image file from the GNOME File Manager onto the Panel. This will automatically change the background of the panel to that image.

- *Image file* - If you choose to have a Pixmap for the background of your Panel this will allow you to choose which image to use. If you press the Browse button you can search for the file you want to use.
- *Scale image to fit panel* - This allows a background image to scale to the size of the panel. If not checked images will tile to the panel.
- *Background color* - If you choose to have your Panel one color this button will launch a dialog which allows you to specify which color to use.

# Chapter 9. Editing the Main Menu

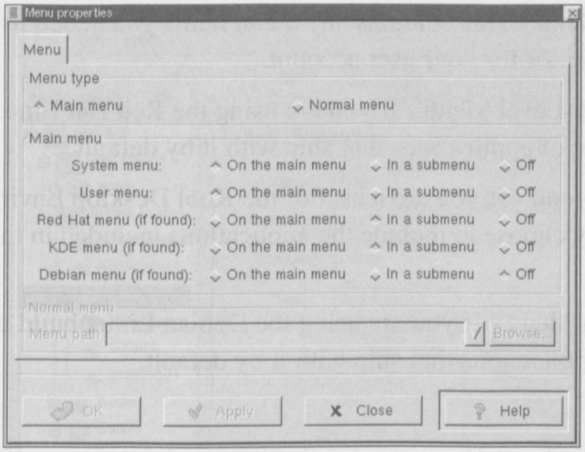
## Introduction

The Main Menu is a repository for your applications and can be found on the Panel. The Main Menu is preloaded with GNOME but is can be configured to fit your work habits. The Main Menu is broken up into two main subdirectories: the System menus and the User menus. The Menu Editor is available for you to add new applications to the Main Menu but you can not add applications to the System menus if you are not the system administrator (root). In this section you will learn how to configure the Main Menu with applications you wish to use everyday.

## Configuring the Main Menu

If you want to change properties of the Main Menu or any other menu you have on your Panel you may right click on the menu button and select **Properties**. This will launch the *Menu properties* dialog.

**Figure 9-1. Menu Properties Dialog**



Menu type: ● Main menu ○ Normal menu

Main menu

System menu: ● On the main menu ○ In a submenu ○ Off
User menu: ● On the main menu ○ In a submenu ○ Off
Red Hat menu (if found): ○ On the main menu ● In a submenu ○ Off
KDE menu (if found): ○ On the main menu ● In a submenu ○ Off
Debian menu (if found): ○ On the main menu ○ In a submenu ● Off

The first selection item in the *Menu properties* dialog is the *Menu type*. This will allow you to change the menu from a Main Menu to a Normal Menu.

The other choices in the *Menu properties* dialog are sub-menu selections for Main Menus. These selections allow you to choose what is in your Main Menu which you can have in the Main Menu, in a submenu, or off:

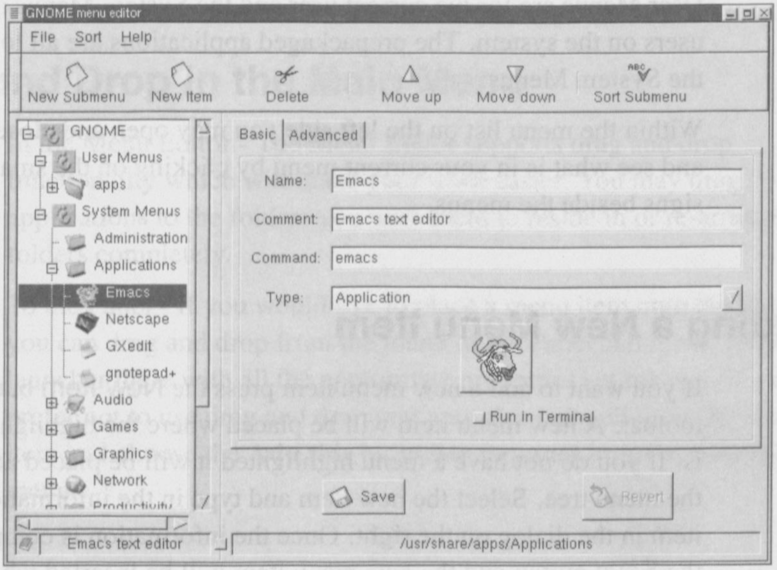
- System Menus - This is the menu items that are the default applications that come with GNOME.
- User Menu - This contains any menu items you added using the Menu Editor for your user account.
- Another Level Menu - If you are using the Red Hat Linux build this is the set of applications that ship with it by default.
- KDE Menu - If you are a user of the Kool Desktop Environment you may choose to include the applications included in the KDE menus.
- Debian Menu - If you are using the Debian Linux build this is the set of applications that ship with it by default.

## Using the Menu Editor

The Menu Editor is a configuration tool for the Main Menu. It is very useful in setting up your system to your requirements. The Menu Editor is started by clicking on the Main Menu Launcher and selecting **Settings | Menu editor** from the **Main Menu**.

This will launch the Menu Editor.

**Figure 9-2. The Menu Editor**


GNOME menu editor
File
Sort
Help
New Submenu
New Item
Delete
Move up
Move down
Sort Submenu
GNOME
User Menus
apps
System Menus
Administration
Applications
Emacs
Netscape
GXedit
gnotepad+
Audio
Games
Graphics
Network
Productivity
Basic
Advanced
☐ Run in Terminal
Save
Revert

Name: Emacs

Comment: Emacs text editor

Command: emacs

Type: Application

Emacs text editor

/usr/share/apps/Applications

The Menu Editor is divided into two main panels. The left side contains the menu in its default state. The right side contains a tabbed dialog that allows you to add new applications to the menu.

On the left side in the menu tree you will notice that there are two main menu lists, one for User Menus and one for System Menus. The User Menus are for the current user and the System Menus are for all users on the system. The prepackaged applications are all located in the System Menus.

Within the menu list on the left side you may open and close folders and see what is in your current menu by clicking on the small plus signs beside the menus.

## Adding a New Menu Item

If you want to add a new menu item press the New Item button on the toolbar. A new menu item will be placed where the highlighted menu is. If you do not have a menu highlighted it will be placed at the top of the menu tree. Select the new item and type in the information for the item in the dialog on the right. Once the information is complete press the Save button and the new menu item will be inserted where your cursor is on the right side menu tree. You may then move the menu item by pressing the up or down buttons on the toolbar. You may also move the menu item by dragging it with your left mouse button.

> **IMPORTANT:** Keep in mind that you can not change the System menus unless you are logged in as root. If not, you can only add

to, and edit, the User Menus.

## Drag and Drop in the Main Menu

In the Menu Editor - The Menu Editor supports drag and drop functionality which will make your work easier. You may drag applications to the folders you wish them to reside in or re-arrange you folders completely.

To the Panel - If you would like to place a menu item onto the Panel you can drag and drop from the menu to the Panel and it will place a launcher there with all the appropriate properties set for you. If you prefer not to use drag and drop you may also right click on the menu item and choose the **Add this launcher to panel** from the **pop-up** menu.

# Chapter 10. The GNOME Control Center

## Introduction

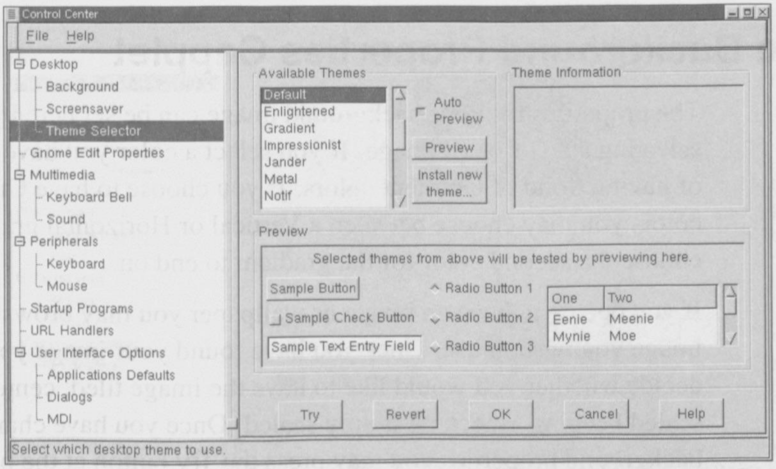
The GNOME Control Center allows you to configure various parts of your system using a collection of tools called "capplets". These capplets may be associated with the core set of GNOME applications or other applications for which the developers have written capplets.

Your Control Center may contain more capplets than are documented here depending on the applications installed on your system.

The Control Center is divided into two main sections, the menu of configurable capplets and the main work space.

Working with the Control Center simply requires you to select a capplet from the menu on the left and double click on it. Once this is done, the workspace will change, allowing you to configure the item.

**Figure 10-1. The GNOME Control Center**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Gnome Edit Properties
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Startup Programs
URL Handlers
User Interface Options
Applications Defaults
Dialogs
MDI
Available Themes
Default
Enlightened
Gradient
Impressionist
Jander
Metal
Notif
Auto Preview
Preview
Install new theme...
Theme Information
Preview
Sample Button
Radio Button 1
Sample Check Button
Radio Button 2
Sample Text Entry Field
Radio Button 3
One
Two
Eenie
Meenie
Mynie
Moe
Try
Revert
OK
Cancel
Help

Selected themes from above will be tested by previewing here.

Select which desktop theme to use.

You may start the Control Center one of two ways. To launch the Control Center without any particular active capplet select the **Control Center** menu item from the **System** menu.

If you know which capplet you would like to edit you may start that capplet by selecting the correct menu item in the **Control Center** menu.

# Desktop Capplets

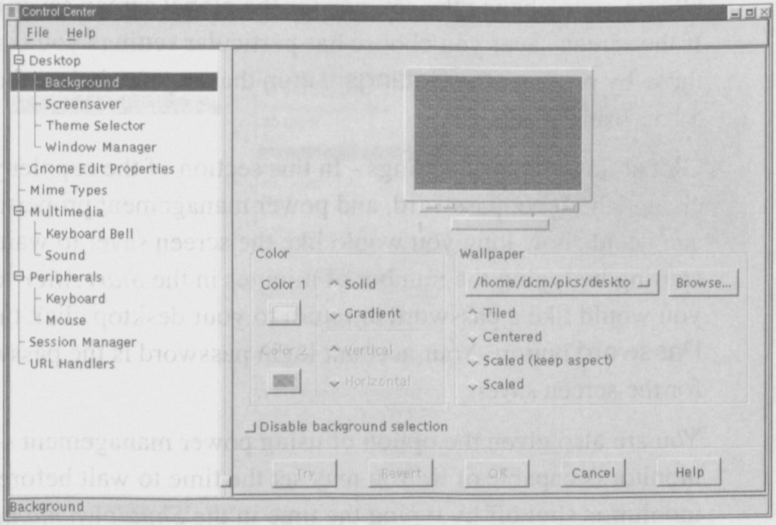
## The Background Properties Capplet

The properties for your background image can be set here by either selecting a color or an image. If you select a color you have the option of having Solid or Gradient colors. If you choose to have Gradient colors you may choose between a Vertical or Horizontal gradient and choose the second color for the gradient to end on.

If you decide to have an image as wallpaper you may browse for the image you wish to use. Once you have found your image you need to decide whether you would like to have the image tiled, centered, scaled keeping aspect, or simply scaled. Once you have changed your background properties you may press the Try button at the bottom of the Control Center to make the change.

If you would like to set the background by any other means you may disable this capplet by selecting *Disable background selection*.

**Figure 10-2. The Background Properties Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Color
Color 1
Solid
Gradient
Color 2
Vertical
Horizontal
Wallpaper
Browse...
Tiled
Centered
Scaled (keep aspect)
Scaled
Disable background selection
Try
Revert
OK
Cancel
Help
Background

Wallpaper: /home/dcm/pics/deskto

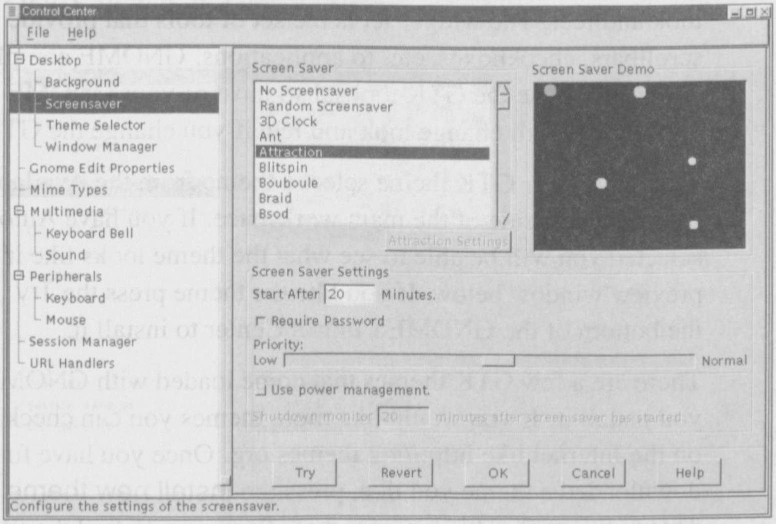
## The Screensaver Capplet

In this capplet you can change your xscreensaver properties. This capplet contains a list of available screen savers you may choose and a demo screen. Below these two dialogs you will see a set of tools that allow you to change the settings for the global screen saver properties. If the screen saver you choose has particular settings you can change those by pressing the Settings button that appears below the Screen Saver list.

Global Screen Saver settings - In this section of the capplet you can change the time, password, and power management properties. You can decide how long you would like the screen saver to wait before starting by typing the number of minutes in the *Start After* text box. If you would like a password to return to your desktop click the Require Password button. Your account login password is the password set for the screen saver.

You are also given the option of using power management – if your monitor is capable of it. You may set the time to wait before the monitor is shut off by typing the time in the *Shutdown monitor* text box.

**Figure 10-3. The Screensaver Properties Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Screen Saver
No Screensaver
Random Screensaver
3D Clock
Ant
Attraction
Blitspin
Bouboule
Braid
Bsod
Attraction Settings
Screen Saver Demo
Screen Saver Settings
Try
Revert
OK
Cancel
Help

Start After 20 Minutes.

☐ Require Password

Priority:
Low Normal

☐ Use power management.

Shutdown monitor 20 minutes after screen saver has started.

Configure the settings of the screensaver.

## Theme Selector

The Appearances capplets contains the Theme Selector which allows you to select which GTK theme you would like to run.

GTK themes are themes which allow the GTK widget set to change look and feel. The widget set is the set of tools that provide buttons, scrollbars, checkboxes, etc. to applications. GNOME compliant applications use the GTK tool set so most of your GNOME applications will change look and feel if you change the GTK theme.

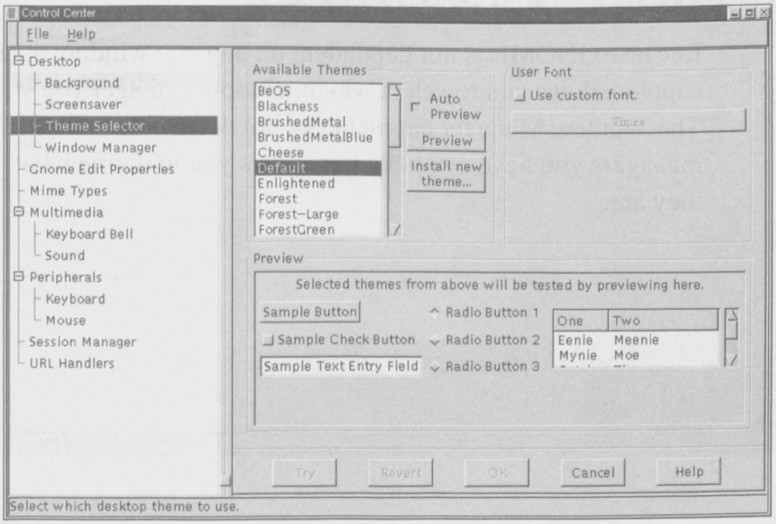
To change your GTK theme select a theme from the Available Themes list on the left side of the main workspace. If you have Auto Preview selected you will be able to see what the theme looks like in the preview window below. If you like the theme press the Try button on the bottom of the GNOME Control Center to install it.

There are a few GTK themes that come loaded with GNOME when you install it. If you would like more themes you can check resources on the Internet like http://gtk.themes.org. Once you have found and downloaded a theme you like, press the Install new theme button. This will launch a file browser that allows you to find the theme you have just downloaded. The theme files should be in a **tar.gz** or **.tgz** format(otherwise known as a "tarball"). Once you have found the file press the OK and it will install the theme for you automatically. Now you can look in the Available Themes list for the theme you have installed.

Once the theme has been unpacked into the .themes directory it will be listed in the available themes window the next time you start the

GNOME Control Center.

**Figure 10-4. The Theme Selector Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Available Themes
BeOS
Blackness
BrushedMetal
BrushedMetalBlue
Cheese
Default
Enlightened
Forest
Forest-Large
ForestGreen
Auto Preview
Preview
Install new theme...
User Font
Use custom font.
Times
Preview
Sample Button
Sample Check Button
Sample Text Entry Field
Radio Button 1
Radio Button 2
Radio Button 3
One
Two
Eenie
Meenie
Mynie
Moe
Try
Revert
OK
Cancel
Help

Selected themes from above will be tested by previewing here.

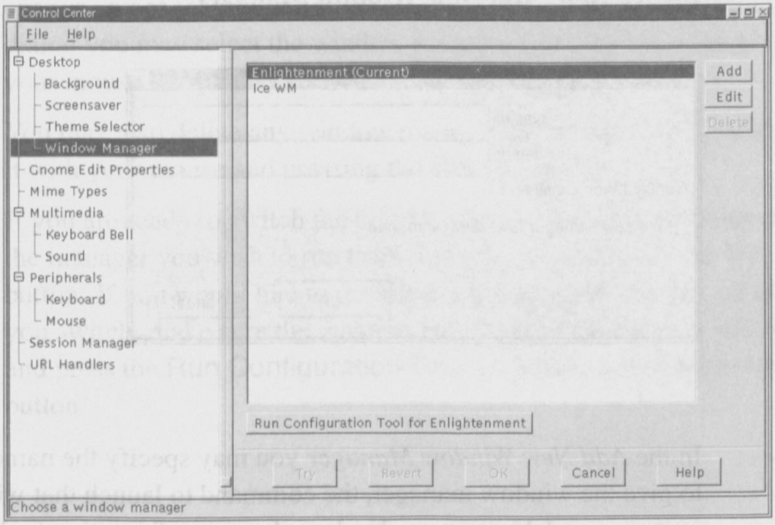
Select which desktop theme to use.

If you would like to change the font used in the current theme you may do so by selecting the *Use custom font* checkbox and selecting the font from the font button below it. This will bring up a font selection dialog which allows you to specify the font, its style, and size.

## Window Manager Capplet

Because GNOME is not dependent on any one window manager this capplet allows you to select which window manager you wish to use. The Window Manager capplet does not determine which window managers you have available but allows you to define what, and where they are.

**Figure 10-5. Window Manager Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Add
Edit
Delete
Run Configuration Tool for Enlightenment
Try
Revert
OK
Cancel
Help

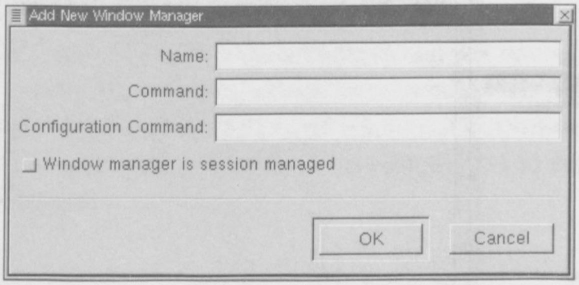
Enlightenment (Current)
Ice WM

Choose a window manager

The Window Manager capplet has a main list of the window managers that you can currently select from. Whichever window manager is active is notated by the word "Current".

If you wish to add a new window manager to the main list you may press the Add button. This will launch the *Add New Window Manager* dialog.

**Figure 10-6. Add New Window Manager**


Add New Window Manager
Name:
Command:
Configuration Command:
☐ Window manager is session managed
OK
Cancel

In the *Add New Window Manager* you may specify the name you wish to give the window manager, the command to launch that window manager, and the command to launch any configuration tool that might be available for that window manager.

If you know that the window manager is fully GNOME compliant and can be session managed you may select the *Window manager is session managed* button. If you are unsure you should check the documentation of your window manager.

Press OK when you are done.

Once you have finished adding your new window manager you will see it appear in the main list of window managers. If you need to change any of the properties you set in the *Add New Window Manager* dialog you may select the window manager from the main list with your mouse and press the Edit button.

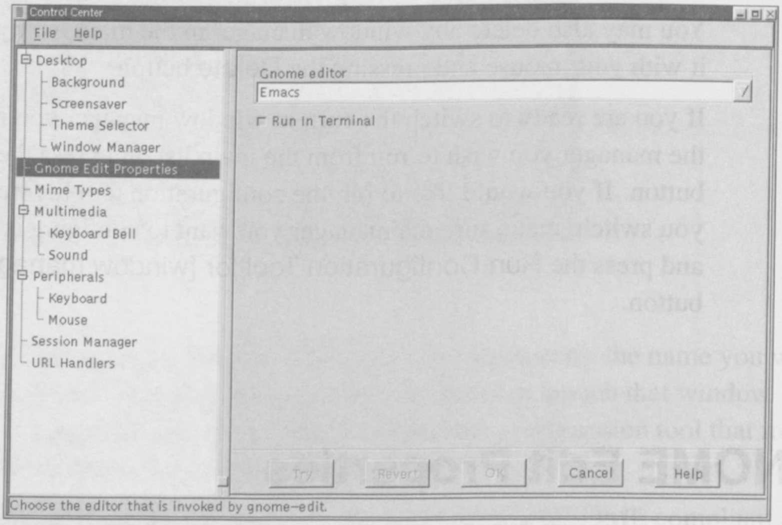
You may also delete any window manager in the main list by selecting it with your mouse and pressing the Delete button.

If you are ready to switch the current window manager you may select the manager you wish to run from the main list and press the Try button. If you would like to run the configuration tool before or after you switch, make sure the manager you want to configure is selected and press the Run Configuration Tool for [window manager name] button.

## GNOME Edit Properties

The GNOME Edit Properties Capplet allows you to select which editor will be your default editor while using GNOME. This will allow applications like the GNOME File Manager to launch the correct editor when you try to open files associated with editing. All popular editors available are included in the selection list. This Capplet is very similar to the Mime Type Capplet but is used in association with certain applications.

**Figure 10-7. The GNOME Edit Properties**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Try
Revert
OK
Cancel
Help

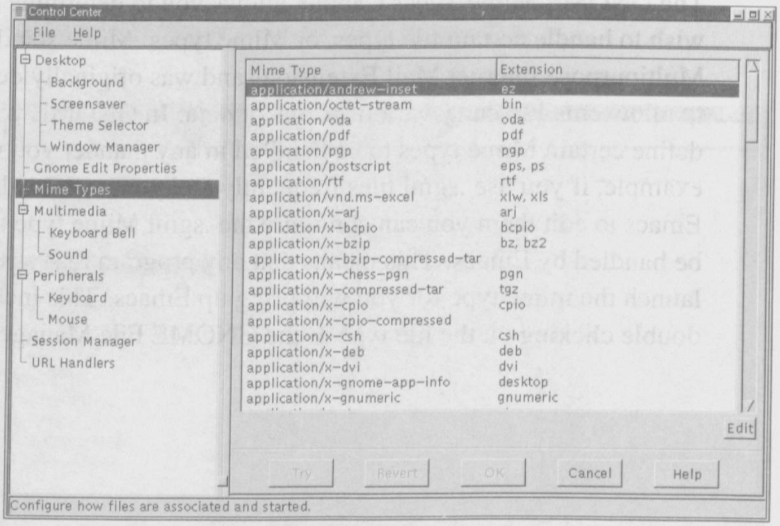
Gnome editor
Emacs
☐ Run in Terminal

Choose the editor that is invoked by gnome-edit.

## GNOME Mime Types

The GNOME Mime Types Capplet allows you to determine how you wish to handle certain file types, or Mime types. Mime stands for Multipurpose Internet Mail Extensions and was originally developed to allow email to carry various forms of data. In GNOME you can define certain Mime types to be handled in any manner you wish. For example, if you use .sgml files frequently and you wish to always use Emacs to edit them you can configure the .sgml Mime type to always be handled by Emacs. This means that any program that wishes to launch the mime type for you will bring up Emacs. This includes double clicking on the file type in the GNOME File Manager.

**Figure 10-8. The GNOME Mime Types**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Edit
Try
Revert
OK
Cancel
Help

| Mime Type | Extension |
|---|---|
| application/andrew-inset | ez |
| application/octet-stream | bin |
| application/oda | oda |
| application/pdf | pdf |
| application/pgp | pgp |
| application/postscript | eps, ps |
| application/rtf | rtf |
| application/vnd.ms-excel | xlw, xls |
| application/x-arj | arj |
| application/x-bcpio | bcpio |
| application/x-bzip | bz, bz2 |
| application/x-bzip-compressed-tar | |
| application/x-chess-pgn | pgn |
| application/x-compressed-tar | tgz |
| application/x-cpio | cpio |
| application/x-cpio-compressed | |
| application/x-csh | csh |
| application/x-deb | deb |
| application/x-dvi | dvi |
| application/x-gnome-app-info | desktop |
| application/x-gnumeric | gnumeric |

Configure how files are associated and started.

To add a new mime type press the Add button. This will display the *Add New Mime Type* dialog in which you may define the new Mime type.

To edit an existing Mime type you may select the Mime type with your mouse cursor and press the Edit button. This will bring up the *Set*

*Actions for...* dialog. You may define the icon used for the Mime type, the *Open* action, the *View* action and the *Edit* action.

# Multimedia Capplets

## Keyboard Bell

The Keyboard Bell capplet allows you to change the bell sound which is produced by your CPU speaker when a keyboard error or message is sent.

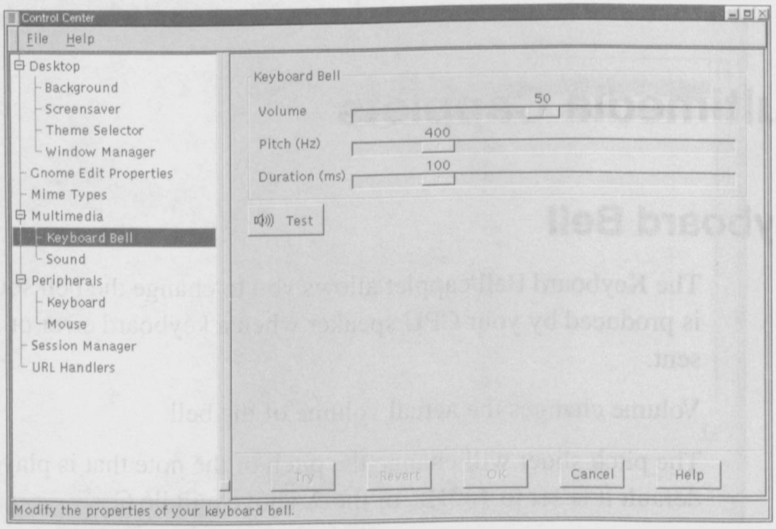
Volume changes the actual volume of the bell.

The pitch slider will change the pitch of the note that is played. By default it is set to 440Hz, or the A above middle C.

Duration changes the length of time the tone is played.

The **Test** button will allow you to hear the current settings of your keyboard bell.

**Figure 10-9. The Keyboard Bell Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Keyboard Bell
Test
Try
Revert
OK
Cancel
Help

Volume 50

Pitch (Hz) 400

Duration (ms) 100

Modify the properties of your keyboard bell.

## The Sound Capplet

The Sound capplet allows you to set the system sounds for your GNOME session. There are two tabs to select in the sound capplet:

General and Sound Events.

*General Tab* - At this point you have two options to choose from in the General tab, enabling sound for GNOME and for events. If you select *Enable Sound for GNOME* you will make sure that GNOME's sound engine (ESD) will be launched every session of GNOME you run. *Enable sound for events* will launch any sound files you have set in the *Sound Events* tab when those events occur. With these two items enabled you will utilize GNOME's session management which will remember your sound settings whenever you log in or out.

*Sound Events Tab* - This tab allows you to navigate through the sound events in GNOME and change their sounds.

To change a sound associated with a GNOME event select the event in the hierarchical list on the left and press the Browse button to find a sound file on your system that you wish to associate with that event. Once you have found a sound file you may press the Play button to test the sound and see if you like it enough to hear it every time the event occurs.

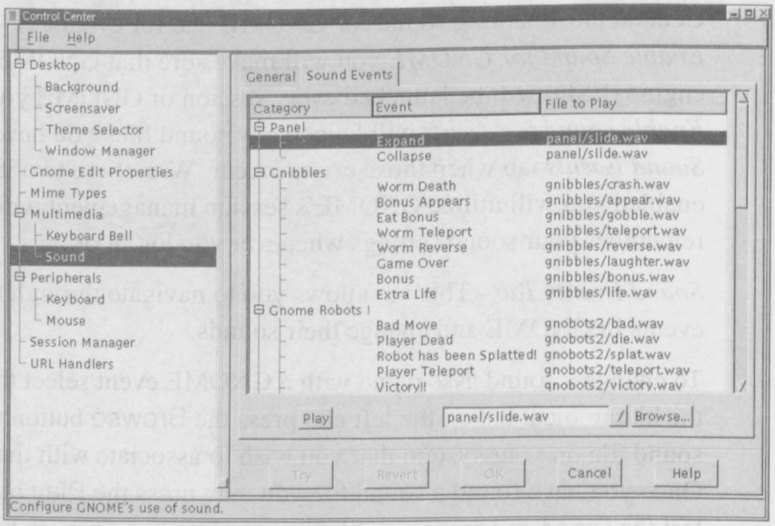


Figure 10-10. The Sound Properties Capplet

Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
General
Sound Events
Play
Browse...
Try
Revert
OK
Cancel
Help

| Category | Event | File to Play |
|---|---|---|
| Panel | | |
| | Expand | panel/slide.wav |
| | Collapse | panel/slide.wav |
| Gnibbles | | |
| | Worm Death | gnibbles/crash.wav |
| | Bonus Appears | gnibbles/appear.wav |
| | Eat Bonus | gnibbles/gobble.wav |
| | Worm Teleport | gnibbles/teleport.wav |
| | Worm Reverse | gnibbles/reverse.wav |
| | Game Over | gnibbles/laughter.wav |
| | Bonus | gnibbles/bonus.wav |
| | Extra Life | gnibbles/life.wav |
| Gnome Robots I | | |
| | Bad Move | gnobots2/bad.wav |
| | Player Dead | gnobots2/die.wav |
| | Robot has been Splatted! | gnobots2/splat.wav |
| | Player Teleport | gnobots2/teleport.wav |
| | Victory!! | gnobots2/victory.wav |

panel/slide.wav

Configure GNOME's use of sound.

# Peripherals

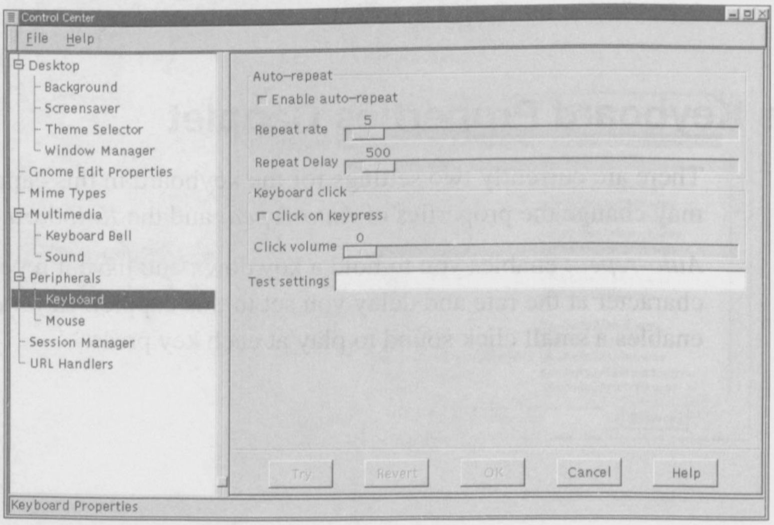
The capplets in this section of the Control Center will help you configure hardware input devices including keyboard, and mouse properties.

## The Keyboard Properties Capplet

There are currently two settings for the keyboard in this capplet. You may change the properties of *Auto-repeat* and the *Keyboard Click*.

*Auto-repeat* enables you to hold a key down and have it repeat the character at the rate and delay you set in this capplet. *Keyboard Click* enables a small click sound to play at each key press.

**Figure 10-11. The Keyboard Properties Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Try
Revert
OK
Cancel
Help
Keyboard Properties

Auto-repeat

☐ Enable auto-repeat

Repeat rate 5

Repeat Delay 500

Keyboard click

☐ Click on keypress

Click volume 0

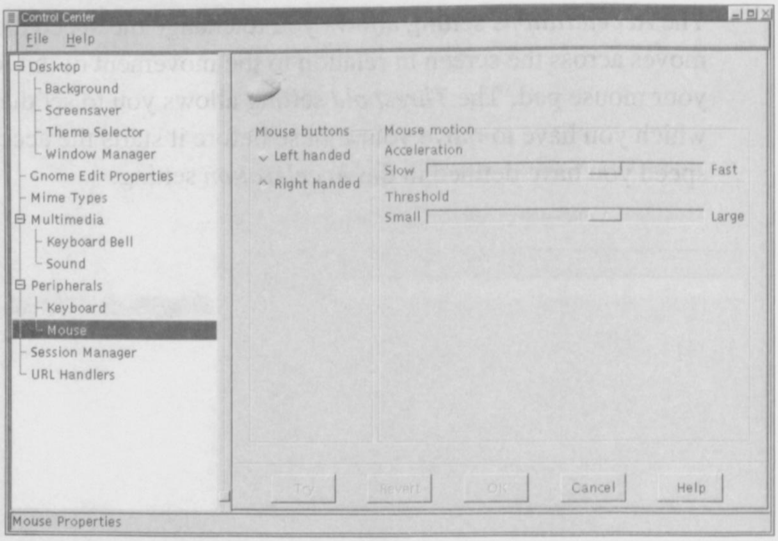
Test settings

## The Mouse Properties Capplet

The Mouse Properties capplet allows you to change between left and right handed mouse buttons and define the *Accelerations* and *Threshold* properties.

The *Accelerations* setting allows you to change the speed the mouse moves across the screen in relation to the movement of the mouse on your mouse pad. The *Threshold* setting allows you to set the speed at which you have to move your mouse before it starts the acceleration speed you have defined in the *Acceleration* setting.

**Figure 10-12. The Mouse Properties Capplet**


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Try
Revert
OK
Cancel
Help
Mouse Properties

Mouse buttons
Left handed
Right handed

Mouse motion
Acceleration
Slow Fast
Threshold
Small Large

## Session Manager

The Session Manager Capplet allows you to control the GNOME Session Management. This includes which programs start up, how you save your GNOME configuration, and how you log out. You can find out more information about Session Management in Chapter 11.

- *Prompt on logout* - This first option allows you to disable the prompt when logging out.
- *Automatically save changes to session* - This will make the Session Management always save changes made to your GNOME session when you log out.
- *Non-session-managed Startup Programs* - This allows you to start non-session managed applications whenever you start a GNOME session.

> **NOTE:** Programs that are not GNOME compliant are not session managed so you do not need to put GNOME applications in here, you can simply leave them running and save the current session when you log out.

If you wish to add a new program to the *Non-session-managed Startup Programs* press the Add button. This will launch a simple dialog that allows you to specify the command to launch the application and what priority it will receive.

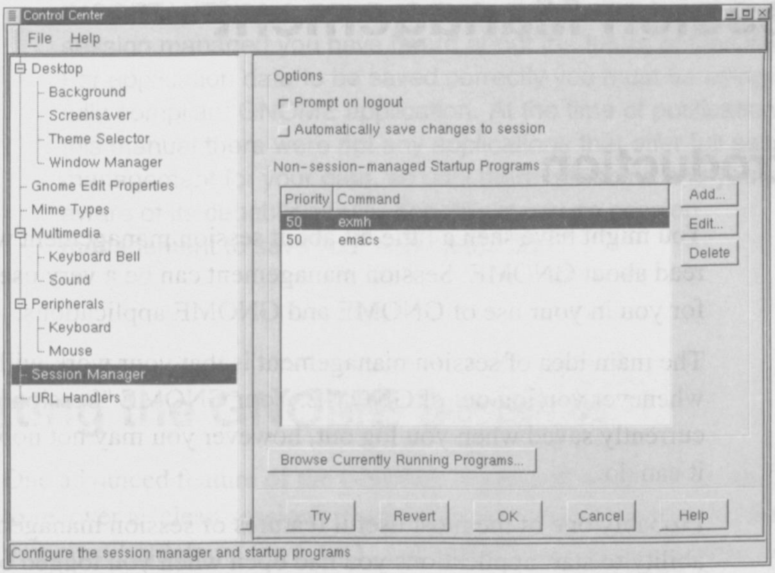
The priority for most applications you wish to start is 50. If you have an application that needs to be started before other applications, like a window manager, you should set the priority to a lower number.

> **IMPORTANT:** This option is for advanced users. Unless you are familiar with the Priority settings you should keep you applications running with a Priority of 50.

- *Browse Currently Running Programs* - This allows you to see what applications are currently running. You may shut down those applications if you wish to and those applications will be removed from your GNOME session. The applications in this list are mostly higher level applications and should not be shut down. However, if there are parts of GNOME that you do not wish to have like the Panel, this is where you would shut it down for now and your next GNOME Session.

> **IMPORTANT:** This option is for advanced users only. You should not shut down applications you may wish to use the next time you log in to GNOME with this tool.

Figure 10-13. The Session Manager Capplet


Control Center
File
Help
Desktop
Background
Screensaver
Theme Selector
Window Manager
Gnome Edit Properties
Mime Types
Multimedia
Keyboard Bell
Sound
Peripherals
Keyboard
Mouse
Session Manager
URL Handlers
Options
Prompt on logout
Automatically save changes to session
Non-session-managed Startup Programs
Add...
Edit...
Delete
Browse Currently Running Programs...
Try
Revert
OK
Cancel
Help

| Priority | Command |
|---|---|
| 50 | exmh |
| 50 | emacs |

Configure the session manager and startup programs

# Chapter 11. A Word About Session Management

## Introduction

You might have seen a little bit about session management when you read about GNOME. Session management can be a very useful tool for you in your use of GNOME and GNOME applications.

The main idea of session management is that your work will be saved whenever you log out of GNOME. Your GNOME "Session" is currently saved when you log out, however you may not notice all that it can do.

Probably one of the most useful features of session management is the ability to start applications you had open when you logged out of GNOME. This is easily demonstrated as you exit GNOME and enter again. You will see your applications re-appear in the same location on your desktop as they were when you logged out.

If there are certain applications you wish to start up whenever you log in, even if they were not open the last time your session was saved, you may add them to the Session Manager Capplet which you can read about in the section called *Session Manager* in Chapter 10.

> **IMPORTANT:** If you have heard about application data being session managed you have heard about the future of GNOME. For application data to be saved correctly you must be using a fully compliant GNOME application. At the time of publication of this manual there were not any applications that offer full session management for your data, so until there are some and you are aware of its capabilities you should not rely on session management to save your application data.

## Resetting the GNOME Session

One advanced feature of the GNOME Session Manager is the ability to recover a "clean session" if anything goes wrong for you. To do this you must hold down the **CTRL** and **SHIFT** keys together when you log in to GNOME.

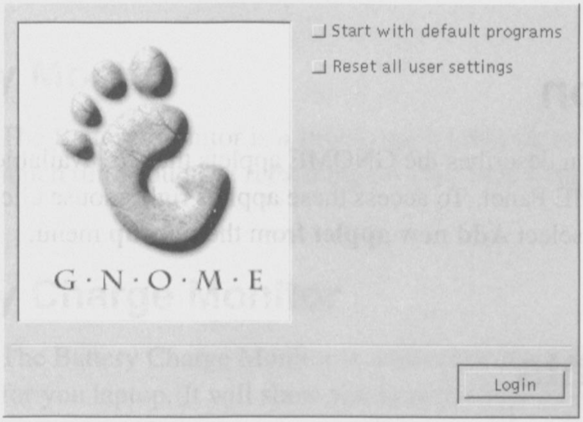
This will bring up a dialog box which gives you two different options for restoring your GNOME Session.

The first option is to *Start with default programs*. This option will remove all of the session configuration setting in respect to applications. This will only erase the GNOME session data for applications you had running when you logged out last, it will not change any information you may have set in the Session Manager Capplet in the GNOME Control Center.

The second option is to *Reset all user settings*. This will reset all GNOME application, and core configuration data. This option will destroy any configurations you have made to the Panel, the GNOME File Manager, the Session Manager Capplet, and any GNOME application. This option will not remove files on your desktop.

**IMPORTANT:** These options are for advanced users and should only be used in case there is a problem with your GNOME Session. You can lose data for many applications if you utilize the functionality provided by these options.

**Figure 11-1. Login Screen for Resetting GNOME Session**



☐ Start with default programs
☐ Reset all user settings
G·N·O·M·E
Login

# Chapter 12. Panel Applets

## Introduction

This section describes the GNOME applets that are available to add to the GNOME Panel. To access these applets right mouse click on the Panel and select **Add new applet** from the **pop-up** menu.

## Amusements

The Amusement applets are applets that are designed to make your life more enriched by providing you with a complete waste of time and resources purely for your entertainment. If you find that valuable space in your brain has been filled with something an Amusement applet has taught you then the authors of that applet have succeeded in their task.

## Monitors

Monitor Applets are designed to be used to keep track of your system and its functions. You can monitor the resources left on your machine which allows you to keep close tabs on how things are working.

## Battery Monitor

The Battery Monitor is a simple applet that allows you to see how much time you have remaining on your laptop monitor.

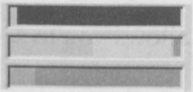
## Battery Charge Monitor

The Battery Charge Monitor is used while you are charging the battery for you laptop. It will show you how much your battery has been charged and how much it has left to complete the task.

## CPU/MEM Usage Monitor

The CPU/MEM Usage Monitor is an applet that will show you the current usage of CPU, Memory, and Swap Space. The applet consists of three bars that are shaded with colors to represent the usage. If you are running the applet on a horizontal panel the top bar is CPU, the middle bar is Memory, and the bottom bar is Swap Space. If you are running the applet on a vertical panel the CPU is the left bar, Memory is the middle bar, and Swap Space is the right bar.

**Figure 12-1. The CPU/MEM Applet**

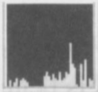


- CPU - The CPU bar will show the current CPU usage with one of three colors. The yellow shows the current hit by the current user. Grey shows the current hit by non-user specified system activity. Black show idle use.
- MEMORY - The Memory bar show the current physical memory usage with one of four colors. The yellow show the current shared memory usage. The grey-yellow show other memory usage. The grey shows the buffers being used. The Green show free physical memory available on your system.
- SWAP SPACE - The Swap Space bar shows how much swap space is being used with a yellow bar. Any free swap space will be shown with a green bar.

## CPULoad Applet

The CPULoad Applet is a simple graph that shows you the current CPU Usage using one of three colors:

**Figure 12-2. The CPULoad Applet**



The yellow shows the current hit by the current user. Grey shows the current hit by non-user specified system activity. Black show idle use.

## MEMLoad Applet

The MEMLoad is a simple graph that shows you the current Memory usage using one of four colors:

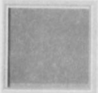
**Figure 12-3. The MEMLoad Applet**

The yellow show the current shared memory usage. The grey-yellow show other memory usage. The grey shows the buffers being used. The Green shows free physical memory available on your system.

## SWAPLoad Applet

The SWAPLoad is a simple graph that shows you the current Swap Space usage using one of two colors:

**Figure 12-4. The SWAPLoad Applet**



The yellow bar shows how much swap space is currently being used. Any free swap space will be shown with a green bar.

## Multimedia

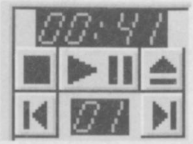
The Multimedia Applets are a collection of applets that allow you to utilize multimedia on your system. You will find applets that control sound, video, and other multimedia.

### CD Player Applet

The CD Player Applet is a simple CD player that resides in the panel.

When you have an audio CD in your CDROM drive you may use the Play/Pause, Stop, Forward, backward and Eject buttons to control your CD for playback. Above the buttons is a small display that shows the time remaining on the track and in between the Forward and Backward buttons is the track number.

**Figure 12-5. The CD Player Applet**



**IMPORTANT:** You must have the correct access to your CDROM drive for this application to be successful. If you have the root password type the following in a terminal window.

```
$ su
$ Password: [type  in root password]
$ chmod a+r /dev/cdrom
$ exit
```

If your CDROM is located somewhere other than /dev/cdrom make sure you change it in the commands above.

If you want more control over your CD you may right mouse click on the CD Player Applet and select **Run gtcd** from the **pop-up** menu.

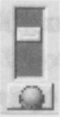
This will launch the GNOME CD Player which you can read more about in Chapter 13.

> **IMPORTANT:** When the CD Player Applet is running you will not have physical control over the eject button on your CDROM drive. If you wish to eject the CD you must use the Eject Button on the CD Player Applet.

## Mixer Applet

The Mixer Applet is a simple applet that allows you to control the volume on your system. There are two main controls on the applet: the Volume Slidebar and the Mute button. To raise or lower the volume use the slide bar with your mouse. To mute your system press the small mute button on the bottom of the applet.

**Figure 12-6. The Mixer Applet**



If you want more control over your system volume you may right mouse click on the Mixer Applet and select the **Run gmix** menu item from the **pop-up** menu.

# Network

Network applets are all applets that allow your work on a network or the internet to be monitored or enhanced. Network applets range from checking mail to monitoring the time you have spent on the internet.

## MailCheck Applet

The Mailcheck applet will check mail on your system and let you know if there is some new mail waiting for you. At this point it will only check your local system mail. It will not query another server for your mail. To access the properties for the Mailcheck applet right mouse click on the applet and select the **Properties** menu item from the **pop-up** menu. The Mail check properties dialog box will appear and you may change the following properties. If you would like to execute a program before each update you may enter a command in the Execute text box. This can be useful if you want to run fetchmail to retrieve your mail from another server. You may also specify how often you check for mail and select which animation style you would like displayed in the applet.

## PPP Dialer Applet

The PPP Dialer is an applet that will start your ppp connection. This is a simple applet that requires you to have a ppp connection set up properly on your system. Once you have your ppp connection configured properly you may press the On button(which displays play/pause icons on it. This will launch your ppp connection.

## WebControl Applet

The WebControl applet allows you to launch your web browser with the URL you indicate in the URL text box. If you would like to launch a new window instead of using the active one you may check the Launch new window checkbox. To clear the URL textbox, press the Clear button. To access the properties right mouse click on the WebControl applet and select the **Properties** menu item from the **pop-up** menu. The Mail check properties dialog box will appear and you can select whether you want to Display the URL text label and the launch new window options on your applet.

# Utility

The Utility Applets are a set of general utilities to use in your work environment.

## Clock Applet

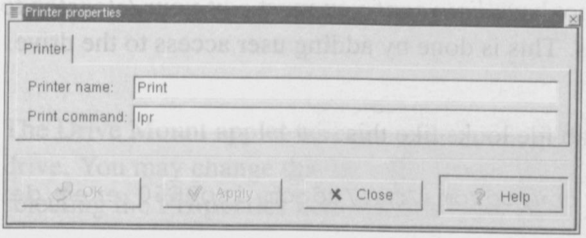
The Clock applet is the only applet which is loaded by default when you install GNOME for the first time. To access the clock properties right mouse click on the clock and select the **Properties** menu item from the **pop-up** menu. The Clock Properties dialog box will appear allowing you to specify whether you would like 12 or 24 hour time to be displayed.

## Printer Applet

The Printer Applet is represented by a small printer icon that lives on your Panel. If you drag a file to the Printer Applet it will print the file for you. To set up the Printer Applet right mouse click on it and select the **Properties** menu item from the **pop-up** menu. This ill bring up the Printer properties dialog box. In this dialog you may specify a printer name and the Print Command. For most systems the Print Command will be

```
lpr
```

**Figure 12-7. The Printer Applet Properties**



Printer name: Print
Print command: lpr

## Drive Mount Applet

On many Unix-like systems, after inserting a disk you must tell the computer to mount it in order to use that disk.

The Drive Mount Applet allows you or your systems administrator to mount a drive on your system by simply clicking the icon on your Panel. In order for this to work you will to have to set the drive you want to access as user mountable.

This can be done quite easily if you have *linuxconf* installed on your machine. Just select the drive you want to access in the *Access local drive* section. In the *Options* tab select the *User Mountable* option. Your drive will now be mountable by users.

If you do not have *linuxconf* you must edit your */etc/fstab* to include user access. This is done by adding user access to the drive. For Example:

If your fstab file looks like this:

```
/dev/cdrom /mnt/cdrom iso9660 exec,dev,ro,noauto 0 0
```

Add "user" to the fourth column:

```
/dev/cdrom /mnt/cdrom iso9660 user,exec,dev,ro,noauto
```

Now that you can mount the drive without being root you may add the Drive Mount Applet to your panel by selecting **Drive Mount** from the

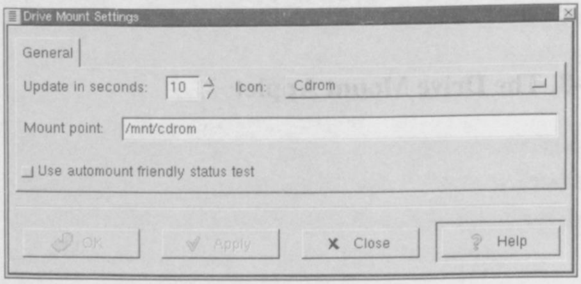
**Utilities** menu in the **Add new applet** menu.

You will see a small drive image on your Panel that looks like a floppy drive.

**Figure 12-8. The Drive Mount Applet**

The Drive Mount applet will always default to access your floppy drive. You may change this by right mouse clicking on the applet and selecting the **Properties** item from the **pop-up** menu.

**Figure 12-9. The Drive Mount Applet**



Update in seconds: 10

Icon: Cdrom

Mount point: /mnt/cdrom

☐ Use automount friendly status test

The *Drive Mount Settings* dialog allows you to define which drive you want to mount and where it is located.

The first option is how many seconds you wish to have before the applet updates. This will check the drive to make sure it is still mounted (in case it was unmounted by other means) and will display the applet correctly.

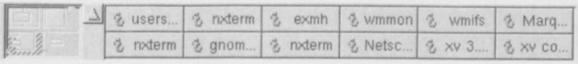
The second option you have is which icon to be displayed. You have a choice of four icons, Floppy, CDROM, Zip Disk, and Hard Drive. After you have selected the icon you must put the correct mount point for the drive in the *Mount point* text box.

The last option to set in the *Drive Mount Settings* is whether or not you wish to *Use automount friendly status test* If you are using a system that utilizes autofs to auto-mount your drives the Drive Mount applet might interfere with autofs. If this is the case you should select this option. If you are not using autofs(which is most likely the case) do not select this option as it is taxing on your system and is much slower.

## GNOME Pager

The GNOME Pager is an applet that will show you all of your virtual desktops and the applications within them. There are two main areas on the GNOME Pager, the desktops view and the applications view. In the desktop view all of your desktops will be represented as a small rectangle. If there are any applications on the desktops, they will show up as small outlines according to their position on the desktop. The Applications view will show you the applications on your active desktop in a list view. If you press the button in the middle that contains the arrow it will show you a view of all desktops and list the applications that are currently on them.

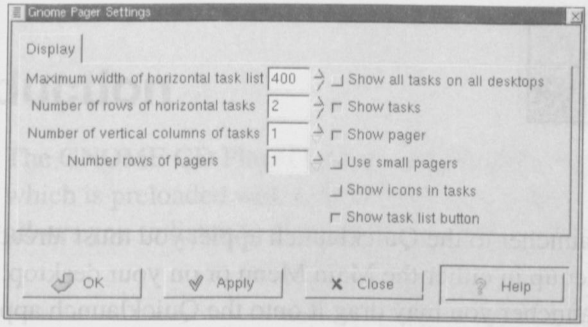
**Figure 12-10. The GNOME Pager**



> **NOTE:** If windows "disappear" from your screen when you iconify them, just add a GNOME Pager to your Panel.

You may access the GNOME Pager properties dialog with a right mouse click on the Pager and select the **Properties** menu item from the **pop-up** menu. On the left side of the GNOME Pager properties you may adjust: the maximum width of the task list, the number of rows in the task list, the number of columns in the task list and the number of rows in the pager. On the right side of the GNOME Pager properties you may turn on and off certain views on the Pager including: a view of all applications on all desktops, the tasks list, and the Pager view. You may also choose to use small pagers and include icons in the task list.

**Figure 12-11. The GNOME Pager Properties**



Maximum width of horizontal task list 400

Number of rows of horizontal tasks 2

Number of vertical columns of tasks 1

Number rows of pagers 1

☐ Show all tasks on all desktops

☑ Show tasks

☑ Show pager

☐ Use small pagers

☐ Show icons in tasks

☑ Show task list button

## Quicklaunch Applet

The Quicklaunch Applet is a small applet that gives you a repository to place launchers. The Quicklaunch applet holds the application launchers you wish to have and allows you to click on them to launch the applications. Drag and drop functionality makes the set up of the Quicklaunch applet very easy and quick.

**Figure 12-12. The Quicklaunch Applet**

To add a launcher to the Quicklaunch applet you must already have the launcher set up in either the Main Menu or on your desktop. Once you have the launcher you may drag it onto the Quicklaunch applet to create a small launcher button. To launch the application simply press the launcher button.

To drag a launcher from you Main Menu click once on the menu to open it, and click once on the sub menu to open it. With you left mouse button click and hold the application launcher and drag it to the Quicklaunch applet and release.

Once the launcher is in the Quicklaunch applet you may right mouse click on it and select *Properties* to change any properties associated with the launcher. The dialog that is launched is the standard GNOME launcher properties dialog which you can read more about in the section called *Adding Application Launchers* in Chapter 5.

# Chapter 13. GNOME CD Player

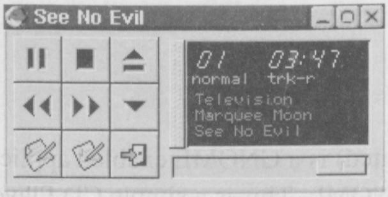
## Introduction

The GNOME CD Player (gtcd) is a GNOME enabled application which is preloaded with GNOME. This is a simple CD Player which allows you to listen to Compact Discs on your PC.

## Using the GNOME CD Player

The GNOME CD Player will be available to you in the Main Menu in the Audio menu and can also be invoked in the command line with **$gtcd**.

**Figure 13-1. The GNOME CD Player**


See No Evil
01 03:47
normal trk-r
Television
Marquee Moon
See No Evil

**IMPORTANT:** You must have the correct access to your CDROM drive for this application to be successful. If you have the root password type the following in a terminal window.

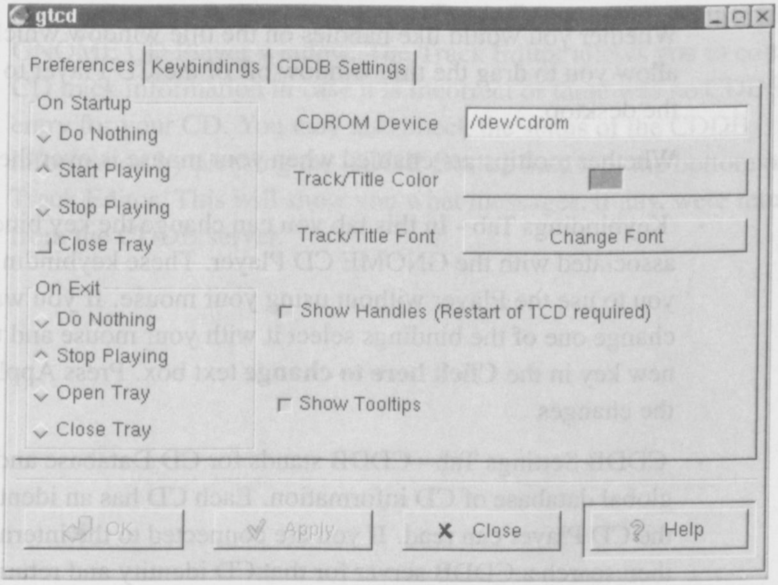
```
$ su
$ Password: [type  in root password]
$ chmod a+r /dev/cdrom
$ exit
```

If your CDROM is located somewhere other than /dev/cdrom make sure you change it in the commands above.

The GNOME CD Player works like any CD Player with common buttons such as Play, Stop, Pause, etc. Plus a track selector button which displays the track titles in a drop down menu. You have access to change various properties as well by pressing the Preferences button. This will bring up the GNOME CD Player Preferences dialog.

There are three tabs in the GNOME CD Player Preferences, Preferences, Keybindings, and CDDB Settings.

**Figure 13-2. The GNOME CD Player Properties**



gtcd
Preferences
Keybindings
CDDB Settings
On Startup
Do Nothing
Start Playing
Stop Playing
Close Tray
On Exit
Do Nothing
Stop Playing
Open Tray
Close Tray
Track/Title Color
Track/Title Font
Change Font
☐ Show Handles (Restart of TCD required)
☐ Show Tooltips
OK
Apply
Close
Help

CDROM Device /dev/cdrom

- Preferences Tab - In this dialog you may specify:

  What you would like the GNOME CD Player to do when first started, and when exited.

  The location of your CDROM on your system. This is usually **/dev/cdrom**.

  The Color to display the Track and CD Title.

  The Font to display the Track and CD Title.

  Whether you would like handles on the title window which will allow you to drag the title window off of the CD Player to float on the desktop.

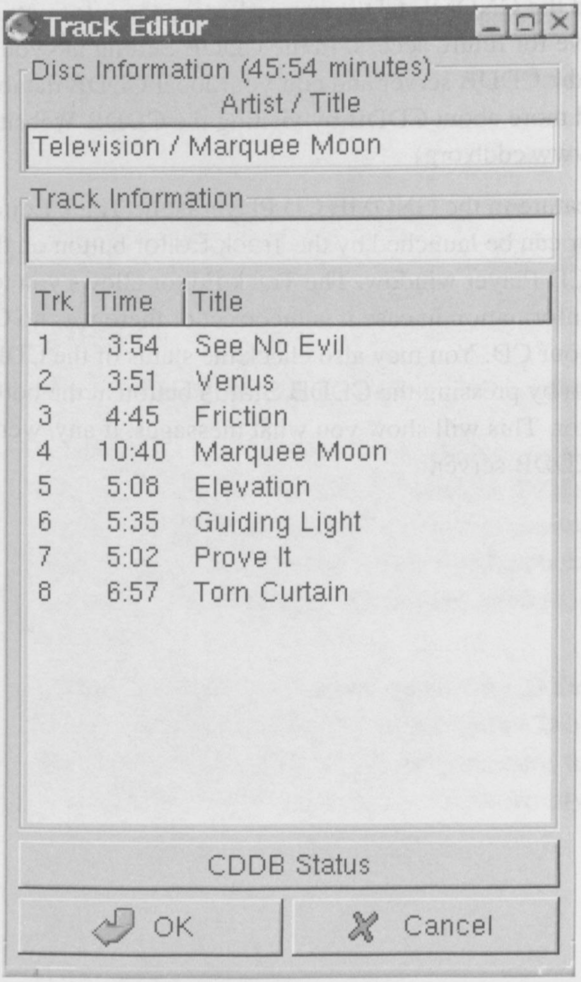
  Whether tooltips are enabled when your mouse is over the buttons.

- Keybindings Tab - In this tab you can change the key bindings associated with the GNOME CD Player. These keybindings allow you to use the Player without using your mouse. If you want to change one of the bindings select it with your mouse and type the new key in the **Click here to change** text box. Press Apply to save the changes

- CDDB Settings Tab - CDDB stands for CD Database and is a huge global database of CD information. Each CD has an identity which the CD Player can read. If you are connected to the internet it will then search a CDDB server for that CD identity and return any information it has on it. This usually includes CD Title, Artist, and track titles. It can also include notes and lyric information. Once retrieved the GNOME CD Player will store the information on your hard drive for future access. In the CDDB Setting tab you can change the CDDB server and edit your local CDDB database. You can read more about CDDB by visiting the CDDB Website (http://www.cddb.org).

Another feature in the GNOME CD Player is the Track Editor. The track editor can be launched by the Track Editor button on the main GNOME CD Player window. The Track Editor allows you to edit the CD track information in case it is incorrect or there was no CDDB entry for your CD. You may also check the status of the CDDB information by pressing the CDDB Status button at the bottom of the Track Editor. This will show you what messages, if any, were returned from the CDDB server.

**Figure 13-3. The GNOME CD Player Track Editor**



Track Editor

Disc Information (45:54 minutes)

Artist / Title

Television / Marquee Moon

Track Information

| Trk | Time | Title |
|---|---|---|
| 1 | 3:54 | See No Evil |
| 2 | 3:51 | Venus |
| 3 | 4:45 | Friction |
| 4 | 10:40 | Marquee Moon |
| 5 | 5:08 | Elevation |
| 6 | 5:35 | Guiding Light |
| 7 | 5:02 | Prove It |
| 8 | 6:57 | Torn Curtain |

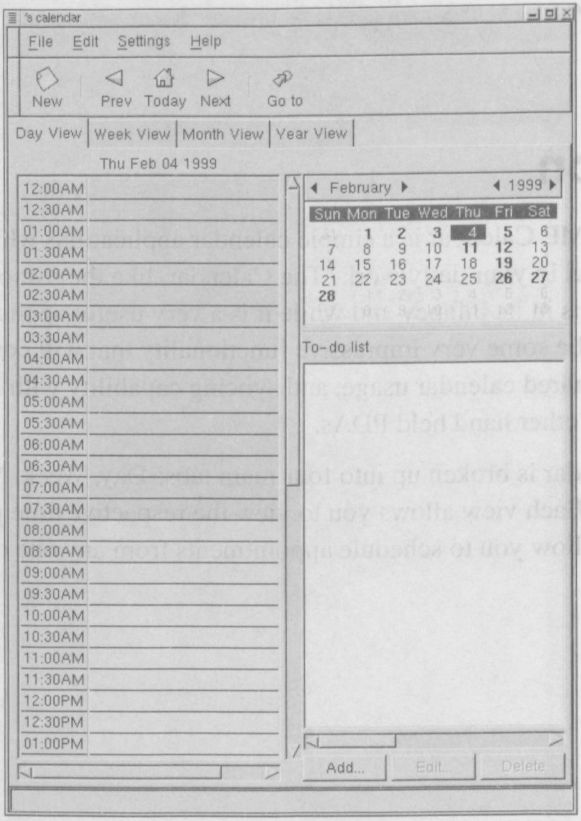
# Chapter 14. The GNOME Calendar

## Introduction

The GNOME Calendar is a simple calendar applications which can be quite useful in your daily work. The Calendar, like the rest of GNOME, is in its infancy and while it is a very useful application, there will be some very impressive functionality that will come like network shared calendar usage, and syncing capability with Palm Pilots and other hand held PDAs.

The Calendar is broken up into four main tabs: Day, Week, Month, and Year. Each view allows you to view the respective time period but will also allow you to schedule appointments from any one of the tabs.

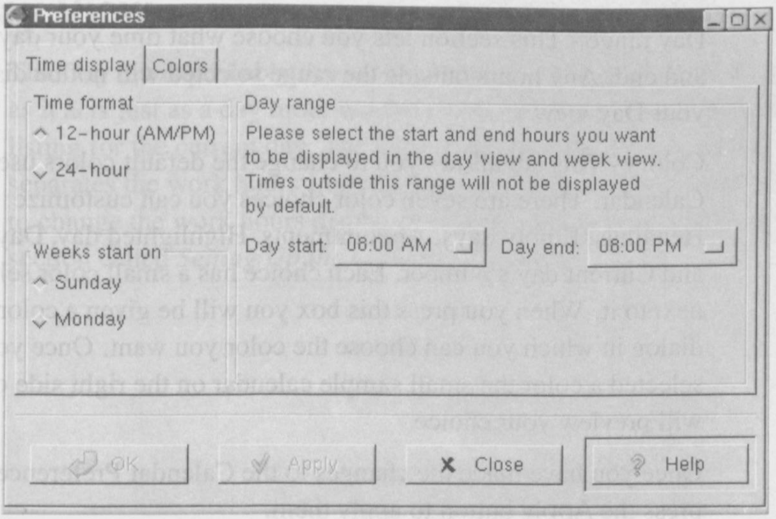
**Figure 14-1. The GNOME Calendar**


's calendar
File
Edit
Settings
Help
New
Prev
Today
Next
Go to
Day View
Week View
Month View
Year View
Thu Feb 04 1999
12:00AM
12:30AM
01:00AM
01:30AM
02:00AM
02:30AM
03:00AM
03:30AM
04:00AM
04:30AM
05:00AM
05:30AM
06:00AM
06:30AM
07:00AM
07:30AM
08:00AM
08:30AM
09:00AM
09:30AM
10:00AM
10:30AM
11:00AM
11:30AM
12:00PM
12:30PM
01:00PM
February
1999
Sun Mon Tue Wed Thu Fri Sat
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28
To-do list
Add...
Edit...
Delete

# Setting Up the GNOME Calendar

The GNOME Calendar can be used in the state which it is shipped but there are some tools available to make sure it is setup the way you would like it to be. The first place you should go is the GNOME Calendar Preferences. You can find the Preferences dialog by selecting the **Preferences** menu item from the **File** menu.

**Figure 14-2. The GNOME Calendar Preferences**



Time format

12-hour (AM/PM)

24-hour

Weeks start on

Sunday

Monday

Day range

Please select the start and end hours you want to be displayed in the day view and week view. Times outside this range will not be displayed by default.

Day start: 08:00 AM

Day end: 08:00 PM

The Calendar Preferences dialog is broken up into two tabs, Time display and Colors.

Time - This tab is broken up into three main sections: Time format, Weeks start on, and Day range.

Time format - This allows you to choose between a 12 or 24 hour format clock.

Weeks start on - This allows you to define what day your week will start on, Sunday or Monday. This will affect how the calendar is laid out in the Day and Week views.

Day range - This section lets you choose what time your days will start and end. Any hours outside the range selected will not be displayed on your Day view.

Colors - This tab allows you to change the default colors used in the Calendar. There are seven color choices you can customize: Outline, Headings, Empty days, Appointments, Highlighted day, Day numbers, and Current day's number. Each choice has a small color selector box next to it. When you press this box you will be given a color selector dialog in which you can choose the color you want. Once you have selected a color the small sample calendar on the right side of the tab will preview your choice.

Once you have made the changes to the Calendar Preferences you may press the Apply button to apply them.

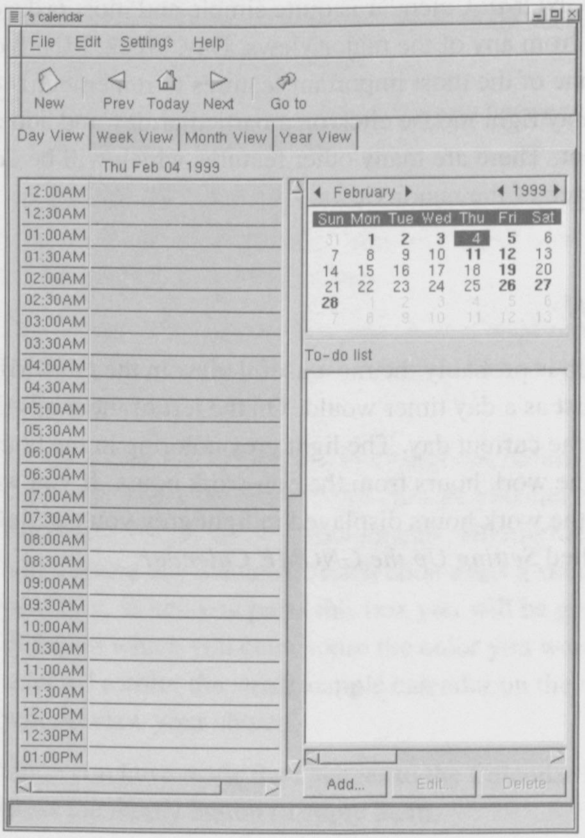
# Using the GNOME Calendar

Using the GNOME Calendar is quite simple and most tasks can be performed from any of the major views, Day, Week, Month or Year. Probably one of the most important features to remember is that at any time you may right mouse click on a particular day and add a new appointment. There are many other features which will be described below in each of the major views.

## The Day View

The Day tab is probably the most useful view in the GNOME Calendar as it acts just as a day timer would. On the left of the tab is the hour listing for the current day. The light grey coloring in the hour list separates the work hours from the non-work hours. If you would like to change the work hours displayed in light grey you can do so in the section called *Setting Up the GNOME Calendar*.

**Figure 14-3. The Day View**


's calendar
File
Edit
Settings
Help
New
Prev
Today
Next
Go to
Day View
Week View
Month View
Year View
Thu Feb 04 1999
12:00AM
12:30AM
01:00AM
01:30AM
02:00AM
02:30AM
03:00AM
03:30AM
04:00AM
04:30AM
05:00AM
05:30AM
06:00AM
06:30AM
07:00AM
07:30AM
08:00AM
08:30AM
09:00AM
09:30AM
10:00AM
10:30AM
11:00AM
11:30AM
12:00PM
12:30PM
01:00PM
February
1999
Sun Mon Tue Wed Thu Fri Sat
31 1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 1 2 3 4 5 6
7 8 9 10 11 12 13
To-do list
Add...
Edit...
Delete

> **TIP:** One tip for adding a new appointment in the Day View is to select a few hours in the hours list by clicking and dragging your mouse down the hours list. Once the correct range of time has been selected you may press Enter and type in the appointment. This will allow you to skip the Create New Appointment dialog.

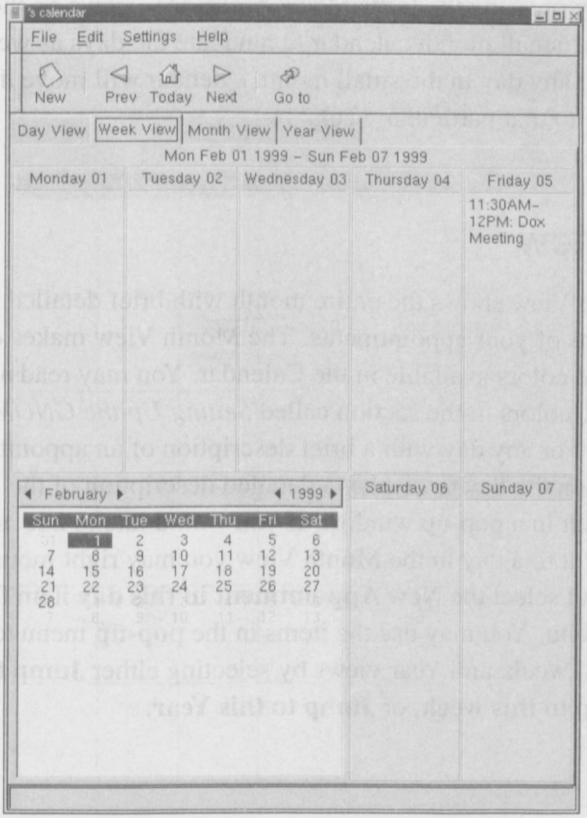
Next to the hours listing in the right hand corner is a small full month calendar. You may change the month or year of the small month calendar by pressing the forward and backward arrows on the top. You may use the small month calendar to navigate the days as well. Double clicking on any day in the small month calendar will move the current day view to that particular day.

Below the small month calendar is your To-do list. The To-do list is a simple list where you can keep all your tasks on hand. To add an item to the To-do list press the Add button. This will launch a small editing box where you can type in the item. Once you have entered an item in the To-do list you may use the Edit and Delete to manage you items. The To-do items are available no matter which days are displayed in the Day View and can only be deleted with the Delete button.

## The Week View

The Week View shows the current week with detailed descriptions of your appointments. If you would like to add an appointment any of the days in the week view you may right mouse click on the day and select the **New appointment** menu item from the **pop-up** menu. You may also use the week view to navigate to particular days in the Day View. Double-click on any day in the Week View and you will go to that day in the Day View.

**Figure 14-4. The Week View**

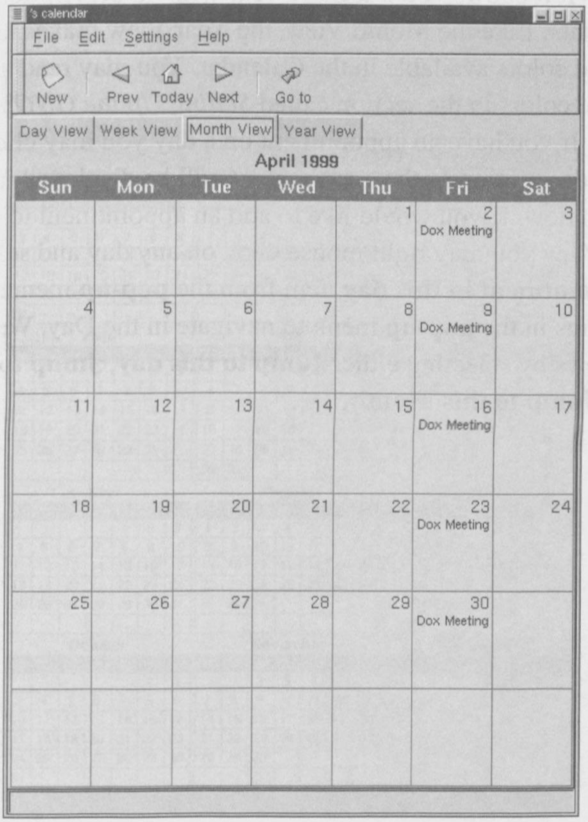

's calendar
File Edit Settings Help
New
Prev
Today
Next
Go to
Day View
Week View
Month View
Year View
Mon Feb 01 1999 – Sun Feb 07 1999
Monday 01
Tuesday 02
Wednesday 03
Thursday 04
Friday 05
11:30AM–12PM: Dox Meeting
Saturday 06
Sunday 07
February
1999
Sun Mon Tue Wed Thu Fri Sat

In the lower left corner of the Week View there is a small month calendar. You may change the month or year of the small month calendar by pressing the forward and backward arrows on the top. You may use the small month calendar to navigate the days as well. Double clicking on any day in the small month calendar will move the current week view to that particular week.

## The Month View

The Month View shows the entire month with brief detailed descriptions of your appointments. The Month View makes use of the customized colors available in the Calendar. You may read about how to set these colors in the section called *Setting Up the GNOME Calendar*. For any day with a brief description of an appointment you may click on the day to display a detailed description of the appointment in a pop-up window. If you would like to add an appointment to a day in the Month View you may right mouse click on any day and select the **New Appointment in this day** item from the **pop-up** menu. You may use the items in the **pop-up** menu to navigate in the Day, Week, and Year views by selecting either **Jump to this day**, **Jump to this week**, or **Jump to this Year**.

**Figure 14-5. The Month View**


's calendar
File
Edit
Settings
Help
New
Prev
Today
Next
Go to
Day View
Week View
Month View
Year View

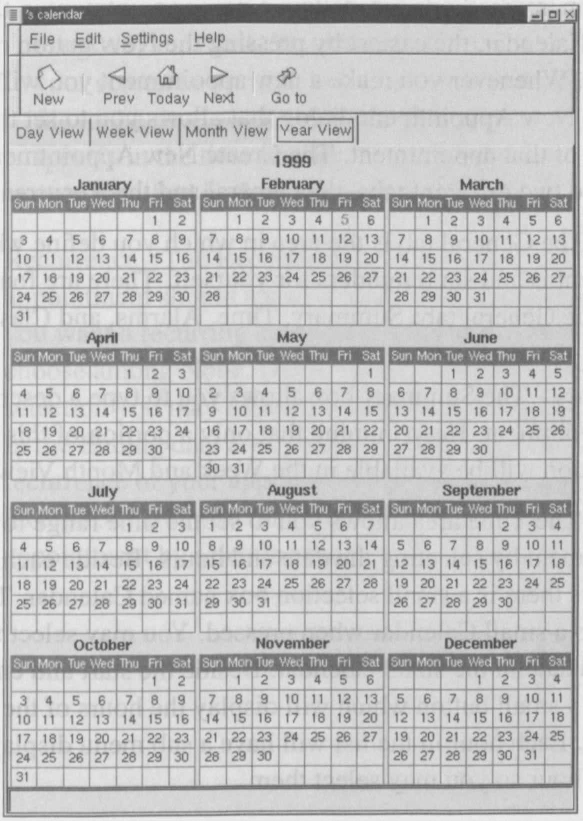
April 1999

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
|  |  |  |  | 1 | 2<br>Dox Meeting | 3 |
| 4 | 5 | 6 | 7 | 8 | 9<br>Dox Meeting | 10 |
| 11 | 12 | 13 | 14 | 15 | 16<br>Dox Meeting | 17 |
| 18 | 19 | 20 | 21 | 22 | 23<br>Dox Meeting | 24 |
| 25 | 26 | 27 | 28 | 29 | 30<br>Dox Meeting |  |
|  |  |  |  |  |  |  |

## The Year View

The Year View shows you the entire year with no descriptions of appointments. Like the Month View, the Year View makes use of the customized colors available in the Calendar. You may read about how to set these colors in the section called *Setting Up the GNOME Calendar*. If you have an appointment on a day you may click on that day and a description of the appointment will be displayed in the pop-up window. If you would like to add an appointment to a day in the Year View you may right mouse click on any day and select the **New Appointment in this day** item from the **pop-up** menu. You may use the items in the **pop-up** menu to navigate in the Day, Week, and Month views by selecting either **Jump to this day**, **Jump to this week**, or **Jump to this Month**.

**Figure 14-6. The Year View**



1999

January

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | | | | | | |

February

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | | | | | | |

March

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

April

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

May

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |

June

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | | | |

July

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

August

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

September

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | | |

October

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | | | | | | |

November

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | | | | |

December

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 | |

## Making a New Appointment

There are many methods for making a new appointment in the GNOME Calendar, the easiest by pressing the **New** button on the button bar. Whenever you make a new appointment you will launch the Create New Appointment dialog that allows you to set the properties of that appointment. The Create New Appointment dialog is broken into two different tabs, the General and the Recurrence tabs.

General - The General tab is the area in which you define when the appointment is and set reminders for yourself. There are four different areas on the General tab: Summary, Time, Alarms, and Classification.

- Summary - The Summary box allows you to type a description of the appointment. Keep in mind that only a portion of this description will be available in the Week and Month Views.
- Time - The Time area allows you to set the time range for the appointment by selecting the date and hours. Beside each start and end days there is a small selection box named Calendar. This will bring up a small Calendar when pressed. You may select the start and end date in the small calendar. Beside the start and end hours there is a small button which will display the hours of the day when pressed. Each hour in the list will have a sub menu displaying each quarter hour so you may select them.

- Alarms - The Alarms area allows you to set up an alarm to remind you of an appointment. There are four different types of alarms you may use to remind yourself of appointments: Display, Audio, Program, and Mail. The Display alarm will display a message on your screen in the time you set. The Audio alarm will play an audio file in the time you set. The Program alarm will run a program you specify in the time you set. The Mail alarm will send email to the user specified in the time you set.

Recurrence - The Recurrence tab allows you to specify how often an appointment should recur, if at all. The first property you should set if you want a recurring appointment is the Recurrence rule. You may choose among None, Daily, Weekly, Monthly, and Yearly. For each selection you may adjust the recurrence properties for your selection. In the Ending date area you may set a rule which will stop the recurrence of your appointment or allow it to repeat forever. In the Exceptions area you may make exceptions to the recurring appointment by selecting the date a pressing the **Add** button.

# 15

# Welcome to Linux

Congratulations!

As a new Red Hat Linux user, you've successfully installed one of today's most advanced computer operating systems.

What began in 1991 as a hobby for a young Finnish student named Linus Torvalds has ballooned from a "hacker's darling" into an important tool for both home and business users.

Just six years ago, there were an estimated 100,000 users. Today, about 12 million users worldwide depend on Linux to manage finances, use and control Internet services, create artwork and more. That number is rapidly growing; every day, new users are discovering the power and potential of Linux.

This free, UNIX-like operating system is a multitasking, multi-user environment that has superior memory management, great security features, and more.

In other words, power and, once you become more comfortable with Linux, ease of use.

> **Tip:** Linux is most frequently pronounced with the short "i" and the accent on the first syllable, as in "LIH-nucks".

What do you do next? Relax.

In the chapters that follow, we hope to show you the basics of how to get the most out of your new system. If you're interested, we will also show you the roads to take which can lead you to becoming a Linux guru.

## 15.1 A Note About Conventions

At the time you installed your Red Hat Linux system, you were given the option of working entirely in a graphical environment, such as GNOME, or logging in from console mode, which is non-graphical.

If you're like many new Linux users, you're familiar with graphical environments such as Microsoft Windows, Apple Macintosh or IBM's OS/2.

So it's a fairly safe bet that you chose to work in a graphical environment when you installed Red Hat Linux 6.0.

You'll find plenty of opportunities to "point and click" on applications – either on your desktop or from the menu at the bottom of your desktop. But we're going to spend much of our time working from the "shell prompt."

Why? Because at the same time you accomplish tasks, you can learn a little more about how your Red Hat Linux system works.

> **Tip:** Unlike a graphical presentation, a "shell prompt" is the way you can type commands directly to the "shell." You need a shell to use Linux, because it's the tool you use to interact with your operating system. You'll find more information about your shell in Chapter 17 on page 255.

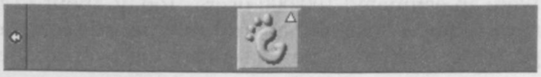


Figure 15.1: The GNOME footprint on the panel

There are plenty of ways to get a shell prompt, depending on the kind of graphical environment you're using, such as GNOME. Depending on the environment chosen, just by right- or left-clicking in a blank space on your desktop, you'll see a reference to `xterm`.

By "dragging" your cursor over that item you will open a shell prompt window. Other times, you'll find you can get a shell prompt window through the menu on your desktop.

In addition to `xterm`, other references which will give you the shell prompt include:

- terminal emulator window

- GNOME terminal
- Color Xterm

We'll use GNOME as our example.

To begin, take your cursor to the GNOME footprint on the panel at the bottom of the desktop.

Now, left-click once on the footprint (see Figure 15.1), and a menu of "folders" will pop up. These folders represent categories of various software groups on our system. There are utilities, graphics programs, Internet applications and much more.

Once the menu pops up, "drag" the cursor to the **Utilities** section of the menu by holding down the mouse button while raising the mouse to the Utilities folder.

Once the cursor is over the folder, a new menu pops up to the right of the Utilities folder.

Here, in the first entries of this new submenu, there is a choice of terminal windows: `Regular xterm`, `Color xterm` and `GNOME terminal` (as shown in Figure 15.2). To get a shell prompt, position the cursor over the terminal window of your choice, and release the mouse button.

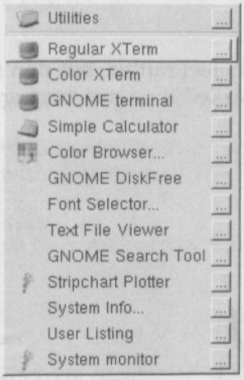

Utilities
Regular XTerm
Color XTerm
GNOME terminal
Simple Calculator
Color Browser...
GNOME DiskFree
Font Selector...
Text File Viewer
GNOME Search Tool
Stripchart Plotter
System Info...
User Listing
System monitor

Figure 15.2: Shell prompt menus in Utilities

**Tip:** Of the choices in the **Panel ⇒ Utilities** menu, the GNOME terminal offers the ability to set background color and other preferences most easily.

Now, it's time to take your first steps.

## 15.2 The Root of the Matter

When your Red Hat Linux system starts, you'll see an array of messages speeding past you on the screen. Many of these messages simply tell you what services are starting on your computer.

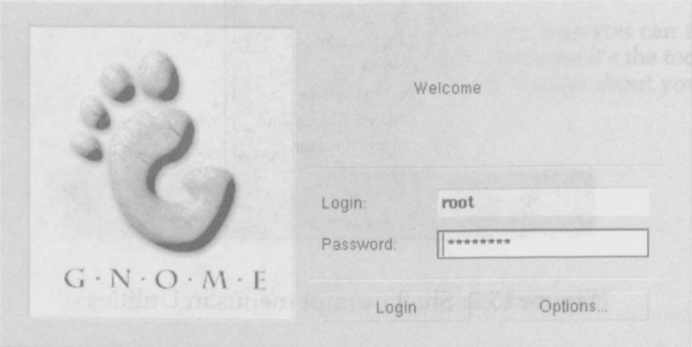
> **Tip:** Want to read those startup messages more closely? At a shell prompt, type `dmesg | more`. You'll be able to read the file one screen at a time. To move forward, press the Spacebar; to quit, press Q.

Finally, we'll come to "the login prompt" (as shown in Figure 15.3).

You'll find:

```
Login:

Password:
```

At this point, some new users can easily feel rattled, but don't panic. Instead, think back: When you installed Red Hat Linux 6.0, you were asked for a *root password*.



Login: root
Password: ********

Figure 15.3: A sample screen of the graphical login prompt

In detail, that is the password you were asked to choose to log in to your root account. When you log in – either in the root account or other accounts – you're introducing yourself to the system. The root account, unlike all other accounts for your system, has access to everything. Also known as the *superuser*, the root account can control everything the system does.

Go ahead and login; at the `Login:` prompt just type:

```
root
```

and press Enter or the Tab key.

> **Tip:** Case matters. Linux, like UNIX, makes a distinction between uppercase and lowercase letters. So `root` is not the same as `Root`. In fact, as far as Linux is concerned, they're two different accounts.

Don't worry about mistakes when you log in; you can always use the Delete key to start over.

When you're asked, type in the password you chose when you installed Red Hat Linux. You won't see your password on the screen as you type; that's just one of the security features of your Linux system.

> **Tip:** Be sure to type commands exactly as you see them – spaces, dashes and all. To Linux, an extra space or letter can make all the difference in the world.

When you're finished typing in your password, press Enter.

You'll be presented with your new desktop (similar to 15.4). Once you become more comfortable with your new operating system and with GNOME, you'll probably be able to fill up that desktop quickly with applications.

There's plenty of space to fill up, not just on your current desktop but on numerous desktops – four by default.

> **Tip:** To learn specifics about GNOME, including applications and navigation, turn to the GNOME User's Guide section of this manual.

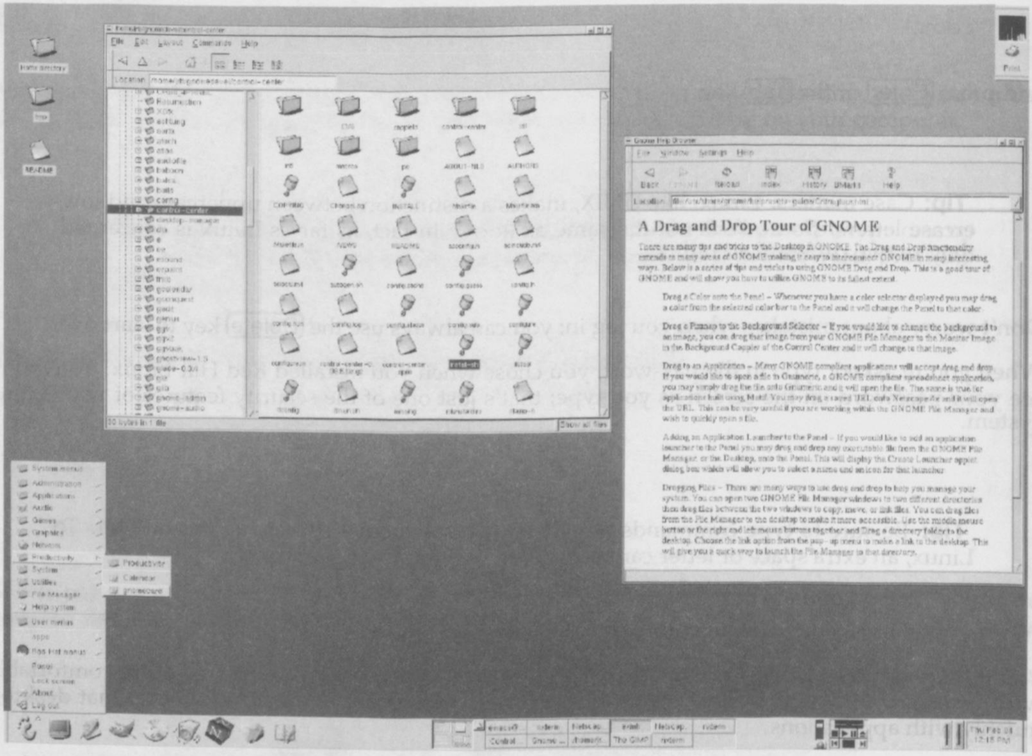
But for now, let's just concentrate on your current desktop.

Go ahead and look around. You can begin by double-clicking with the left mouse button on the file folder called Home Directory on the desktop.

Here, you'll find icons representing the various directories and files on your system.

From the panel on the bottom, left-click once with your mouse, and you can begin to investigate some of the applications which have been included with your environment.

From here, you can find ways to customize your workspace, search for files, write letters or other documents, start spreadsheets and more.


Home directory
Trash
README
File Edit Layout Commands Help
Location:
control-center
File Window Settings Help
Back Forward Reload Index History BMarks Help
Location:
System menus
Administration
Applications
Audio
Games
Graphics
Network
Productivity
System
Utilities
File Manager
Help system
User menus
Red Hat menus
Panel
Lock screen
About
Log out
Productivity
Calendar
gnomecard

A Drag and Drop Tour of GNOME

There are many tips and tricks to the Desktop in GNOME. The Drag and Drop functionality extends to many areas of GNOME making it easy to interconnect GNOME in many interesting ways. Below is a series of tips and tricks to using GNOME Drag and Drop. This is a good tour of GNOME and will show you how to utilize GNOME to its fullest extent.

Drag a Color onto the Panel – Whenever you have a color selector displayed you may drag a color from the selected color bar to the Panel and it will change the Panel to that color.

Drag a Pixmap to the Background Selector – If you would like to change the background to an image, you can drag that image from your GNOME File Manager to the Monitor Image in the Background Capplet of the Control Center and it will change to that image.

Drag to an Application – Many GNOME compliant applications will accept drag and drop. If you would like to open a file in Gnumeric, a GNOME compliant spreadsheet application, you may simply drag the file onto Gnumeric and it will open the file. The same is true for applications built using Motif. You may drag a saved URL onto Netscape 4.x and it will open the URL. This can be very useful if you are working within the GNOME File Manager and wish to quickly open a file.

Adding an Application Launcher to the Panel – If you would like to add an application launcher to the Panel you may drag and drop any executable file from the GNOME File Manager, or the Desktop, onto the Panel. This will display the Create Launcher applet dialog box which will allow you to select a name and an icon for that launcher.

Dragging Files – There are many ways to use drag and drop to help you manage your system. You can open two GNOME File Manager windows to two different directories then drag files between the two windows to copy, move, or link files. You can drag files from the File Manager to the desktop to make it more accessible. Use the middle mouse button or the right and left mouse buttons together and Drag a directory folder to the desktop. Choose the link option from the pop-up menu to make a link to the desktop. This will give you a quick way to launch the File Manager to that directory.

Figure 15.4: A sample GNOME desktop

But before you get too daring...

While you're logged into the root account, avoid the temptation to make any changes to files or directories unless you know exactly what you're doing!

Here's why: Whenever the system recognizes you as the root account you're allowed to do just about anything: change configuration files, make new directories, create and manage accounts for users who are allowed to use your computer and more.

That kind of power comes with a price, and tinkering around with configuration files, accounts and directories can easily lead to disaster.

So how are you supposed to operate safely?

By creating a user account, which we'll cover shortly. With a user account, you can work and play with the assurance that you're not damaging your system.

## 15.3 How to Quit

When you're finished looking around for the first time, you can log out to quit your session (see Figure 15.5).

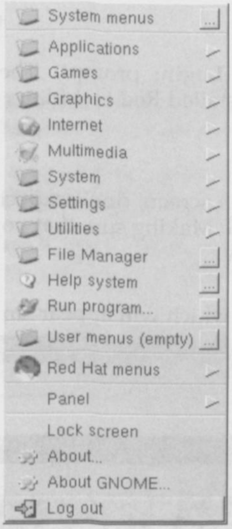

System menus
Applications
Games
Graphics
Internet
Multimedia
System
Settings
Utilities
File Manager
Help system
Run program...
User menus (empty)
Red Hat menus
Panel
Lock screen
About...
About GNOME...
Log out

Figure 15.5: Locating the "Log out" selection

When you log out, you'll be returned to the opening screen you found when your system started.

To log out, just go to the **GNOME footprint** on the panel, left- click once and click on **Log out**.

You'll be presented with a box, asking you whether you want to log out. Click once on **Yes**.

After a few moments, you'll be returned to the log in screen.

> **Summary:** At Login - type `root` At Password - type `yourrootpassword` To quit – Left-click on the GNOME footprint, then click on **Log out**, click **Yes**.

## 15.4 From Console Mode

When you were installing Red Hat Linux 6.0, you were given the option of starting from a graphical or console – non-graphical – screen.

If you chose not to automatically start your computer in a graphical environment, you'll find a somewhat daunting, almost blank screen which will show you something like

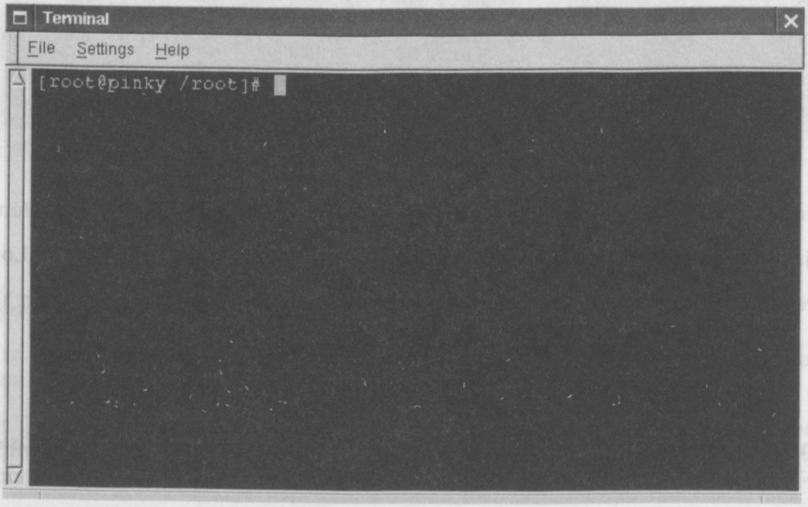
```
Red Hat Linux release 6.0
Kernel 2.2 on an i686
login:
```

You can log in by typing `root` at the **Login:** prompt. Then, when **Password:** appears, type the password you chose at the time you installed Red Hat Linux 6.0.

**Tip:** Just like the graphical login screen, don't expect to see your password "echoed" when you type in your password. Making sure that your password isn't seen is just one of Linux's many security features.

Now, you'll find a single shell prompt, which will appear similar to:

```
[root@localhost root]#
```



```
[root@pinky /root]#
```

Figure 15.6: A sample shell prompt after your login

This tells you that you're logged in as root and in the directory called root (as shown in Figure 15.6). You can exit at any time simply by typing `logoff` or `exit`.

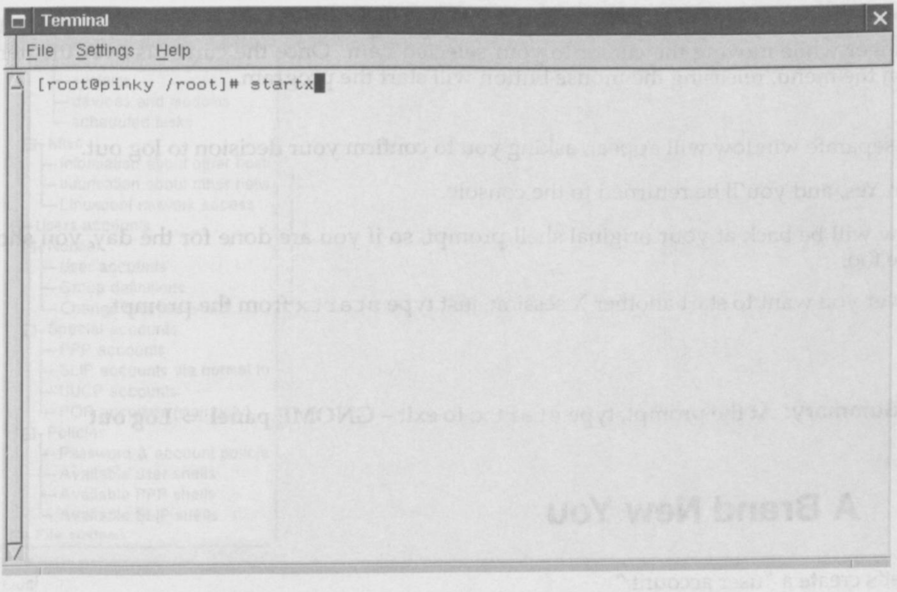
**Tip:** You can also press the Ctrl and D keys at the same time to return you to the login prompt.

## 15.5 X Marks the Spot

If you installed the X Window System (also known simply as X) at the time of your Red Hat Linux installation, you've got a pleasing, graphical environment in which to work.

If you didn't install X at that time, and you wish to use the X Window System, your best bet is to return to the CD at this time and re-install Red Hat Linux 6.0. (Sigh...)

Certainly, there *are* other ways of installing X, but if you're fairly new to Red Hat Linux, and if you're starting out with a brand new installation, you'll find it takes less time – and frustration – to simply redo the installation.



```
[root@pinky /root]# startx
```

Figure 15.7: Starting the X Window System from the prompt

If you did install the X Window System – but didn't choose to start GNOME automatically you're still ready to go.

At the shell prompt, type:

```
startx
```

and the X Window System will begin (refer to Figure 15.7).

**Please Note:** You're logged into the system as the root account, also known as superuser. There's a reason the root account is known as superuser: In this account, you can make changes to just about anything. Unless you know what you're doing, you can easily harm your system by mistakenly changing settings.

Although you may be tempted to modify files or directories, you should resist making any changes until you've created a user account.

To log out of X, bring your mouse cursor to the **GNOME panel**, then left-click on the **GNOME footprint**. A menu of applications, utilities, games and other programs will pop up.

"Drag" your cursor to the item labeled **Log out** (as shown in Figure 15.5).

> **Tip:** You can "drag" your cursor by keeping the mouse button depressed with your finger while moving the cursor to your selected item. Once the cursor is over the item on the menu, releasing the mouse button will start the program.

Now, a separate window will appear, asking you to confirm your decision to log out.

Click on **Yes**, and you'll be returned to the console.

You now will be back at your original shell prompt, so if you are done for the day, you should log out here too.

Whenever you want to start another X session, just type `startx` from the prompt.

> **Summary:** At the prompt, type `startx`; to exit – **GNOME panel ⇒ Log out**

## 15.6 A Brand New You

Now, let's create a "user account."

If you're familiar with MS-DOS or, to a lesser extent, Windows 98, you might be a little befuddled by the requirement of creating a user account.

After all, if you can navigate the system and use programs in your root account, you might think that having two accounts on a single machine is excessive.

Nothing could be further from the truth. Here's why:

Linux is a multi-tasking, multi-user system, which means it can safely and securely accommodate many users at one time, performing plenty of tasks each user requires. But only one account can be root – capable of changing the way the operating system works.

Because "rooting around" can easily lead to havoc, it's important to safeguard against accidents. That's why just about every Linux user – even if they're the system administrator – has their own user account.

Once you're logged in as root, you have two ways to conveniently add a user to the system: from the within X and from the shell prompt.

Both methods are quick and painless.

Let's say that the account you want to choose is called "billy."

From X:

One of the most powerful tools you can use for system administration is *Linuxconf*. You can use Linuxconf for adding and manipulating accounts, monitoring system activities and plenty of other system features.

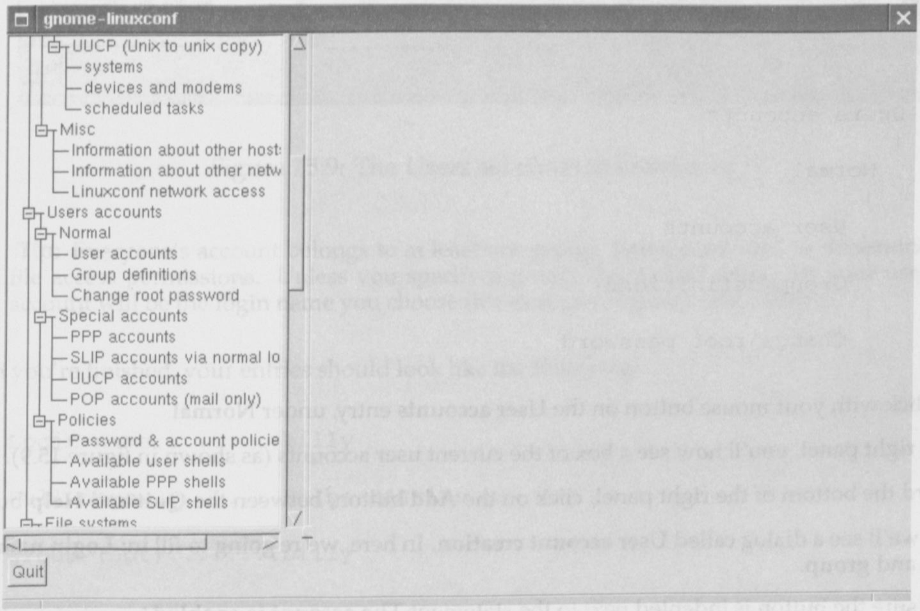

gnome-linuxconf
UUCP (Unix to unix copy)
systems
devices and modems
scheduled tasks
Misc
Information about other host:
Information about other netw
Linuxconf network access
Users accounts
Normal
User accounts
Group definitions
Change root password
Special accounts
PPP accounts
SLIP accounts via normal lo
UUCP accounts
POP accounts (mail only)
Policies
Password & account policie
Available user shells
Available PPP shells
Available SLIP shells
File systems
Quit

Figure 15.8: Finding the Users accounts entry in Linuxconf

Completely documenting all the features of this utility would take much more space than we have here. For a more detailed look at the application's features – including greater depth on manipulating accounts – turn to the "System Configuration with Linuxconf" chapter in the Red Hat Linux Installation Guide.

**Tip:** You can learn more about Linuxconf by visiting the official Linuxconf website: `http://www.solucorp.qc.ca/linuxconf/`.

One of the easiest ways to access Linuxconf is from the shell prompt. At the prompt, type:

```
linuxconf
```

We want to add an account, so let's scroll about a third of the way down the menu in the left panel, to the entry marked **Users accounts**. If the entry has a + next to it, go ahead and click on the "+".

Now, the menu will expand to show entries in the **User accounts** listing (as shown in figure 15.8).

The subentries will look like the following:

```
|
-Users accounts
 |
   Normal
   |
     User accounts
     |
     Group definitions
     |
     Change root password
```

Left-click with your mouse button on the **User accounts** entry, under **Normal**.

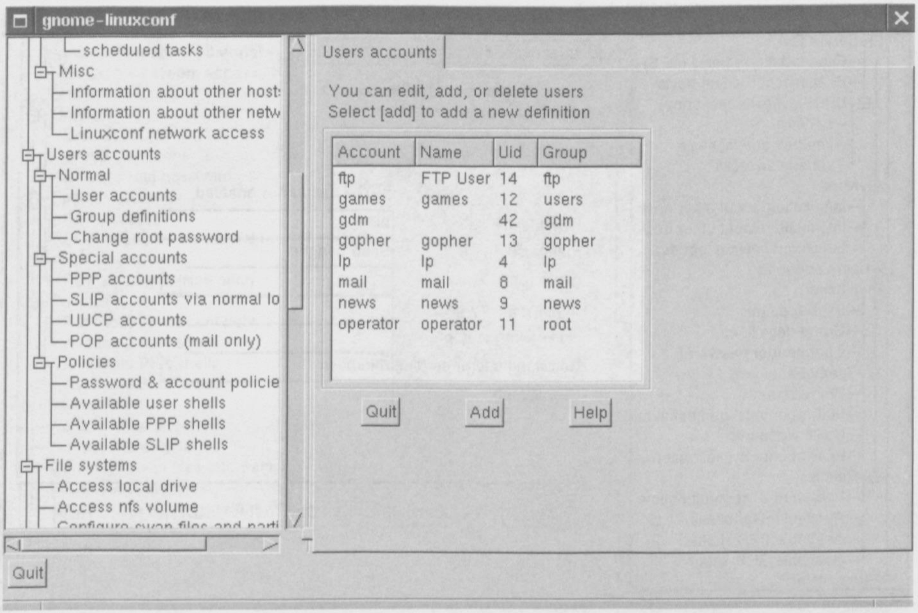
In the right panel, you'll now see a box of the current user accounts (as shown in figure 15.9).

Toward the bottom of the right panel, click on the **Add** button, between the **Quit** and **Help** buttons.

Now, we'll see a dialog called **User account creation**. In here, we're going to fill in: **Login name**; **Full name** and **group**.

Make sure the button is indented next to the statement **The account is enabled**.

Now, let's type in a login name. It should be easy to remember (it's the password that should be complex, but more about that later...). Then, you can type in your full name.


gnome-linuxconf
scheduled tasks
Misc
Information about other host:
Information about other netw
Linuxconf network access
Users accounts
Normal
User accounts
Group definitions
Change root password
Special accounts
PPP accounts
SLIP accounts via normal lo
UUCP accounts
POP accounts (mail only)
Policies
Password & account policie
Available user shells
Available PPP shells
Available SLIP shells
File systems
Access local drive
Access nfs volume
Quit
Users accounts
Quit
Add
Help

You can edit, add, or delete users
Select [add] to add a new definition

| Account | Name | Uid | Group |
|---|---|---|---|
| ftp | FTP User | 14 | ftp |
| games | games | 12 | users |
| gdm | | 42 | gdm |
| gopher | gopher | 13 | gopher |
| lp | lp | 4 | lp |
| mail | mail | 8 | mail |
| news | news | 9 | news |
| operator | operator | 11 | root |

Figure 15.9: The Users accounts in Linuxconf

**Tip:** Everyone's account belongs to at least one group. Groups are used to determine file access permissions. Unless you specify a group, the default group for your user account will be the login name you choose (for example, a group called **billy**).

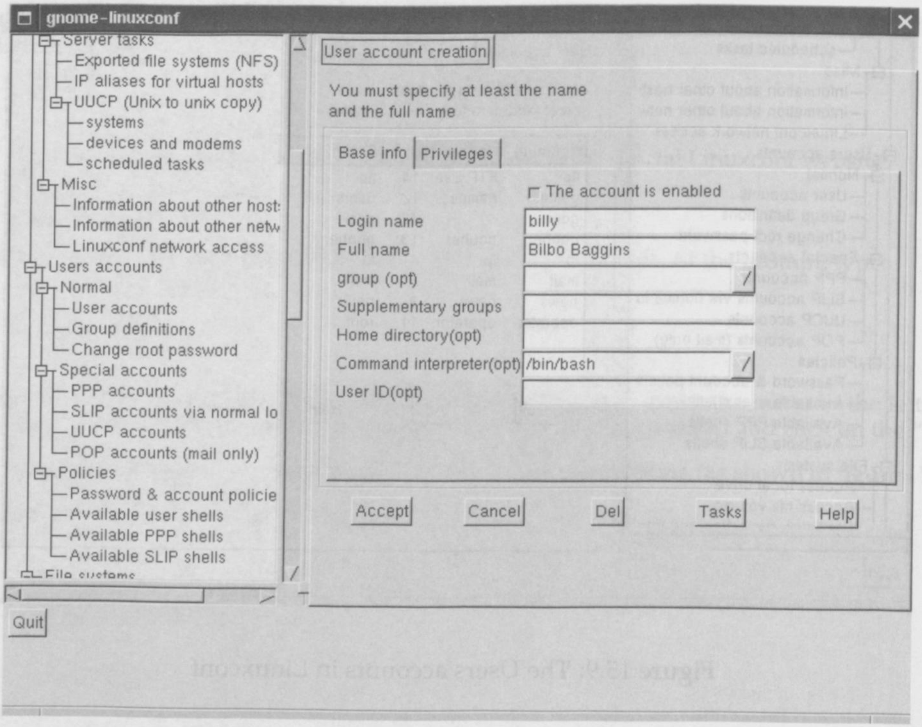
When you're finished, your entries should look like the following:

```
Login name.........billy

Full name..........Bilbo Baggins

group (opt)........billy
```

Now, just click on the button marked **Accept**.

We're almost finished. Next, we've got to come up with a password.

Passwords are one of the best methods to safeguard against prying eyes or malicious behavior. If you've got a secure password, which only you know, you've taken a big step in your system's security.


gnome-linuxconf
Server tasks
Exported file systems (NFS)
IP aliases for virtual hosts
UUCP (Unix to unix copy)
systems
devices and modems
scheduled tasks
Misc
Information about other host:
Information about other netw
Linuxconf network access
Users accounts
Normal
User accounts
Group definitions
Change root password
Special accounts
PPP accounts
SLIP accounts via normal lo
UUCP accounts
POP accounts (mail only)
Policies
Password & account policie
Available user shells
Available PPP shells
Available SLIP shells
File systems
Quit
User account creation
Base info
Privileges
Accept
Cancel
Del
Tasks
Help

You must specify at least the name and the full name

☐ The account is enabled

Login name: billy

Full name: Bilbo Baggins

group (opt):

Supplementary groups:

Home directory(opt):

Command interpreter(opt): /bin/bash

User ID(opt):

Figure 15.10: Adding a user in Linuxconf

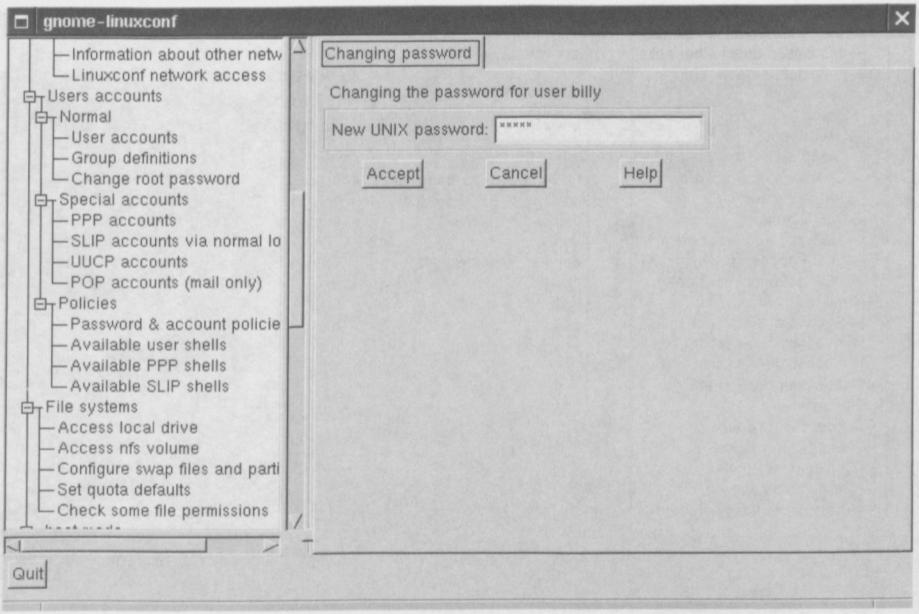
For both your root and user account, your passwords should be unique and easy enough for you to remember. (Passwords can't protect very well if they're jotted down on a piece of paper and taped to the monitor!)

What's both unique and easy to remember? Passwords which both numbers and letters. Here's an example:

- **Weak passwords:** airplane, icecream, california
- **Better passwords:** a!rpl8ne, !cec73am, c8Li70r&ia

One more thing: Passwords must be at least six characters – upper and lowercase letters and/or numbers – in length.

Once you decide on a password that you feel comfortable you'll remember, type it in the box provided. You won't see the password, except in a series of asterisks (as shown in figure 15.11).


gnome-linuxconf
Information about other netw
Linuxconf network access
Users accounts
Normal
User accounts
Group definitions
Change root password
Special accounts
PPP accounts
SLIP accounts via normal lo
UUCP accounts
POP accounts (mail only)
Policies
Password & account policie
Available user shells
Available PPP shells
Available SLIP shells
File systems
Access local drive
Access nfs volume
Configure swap files and parti
Set quota defaults
Check some file permissions
Changing password
Accept
Cancel
Help
Quit

Changing the password for user billy

New UNIX password: *****

Figure 15.11: Creating a user account's password in Linuxconf

Then, click on the **Accept** button.

You'll be asked to retype the password for verification. Again, you won't see your password as you type it.

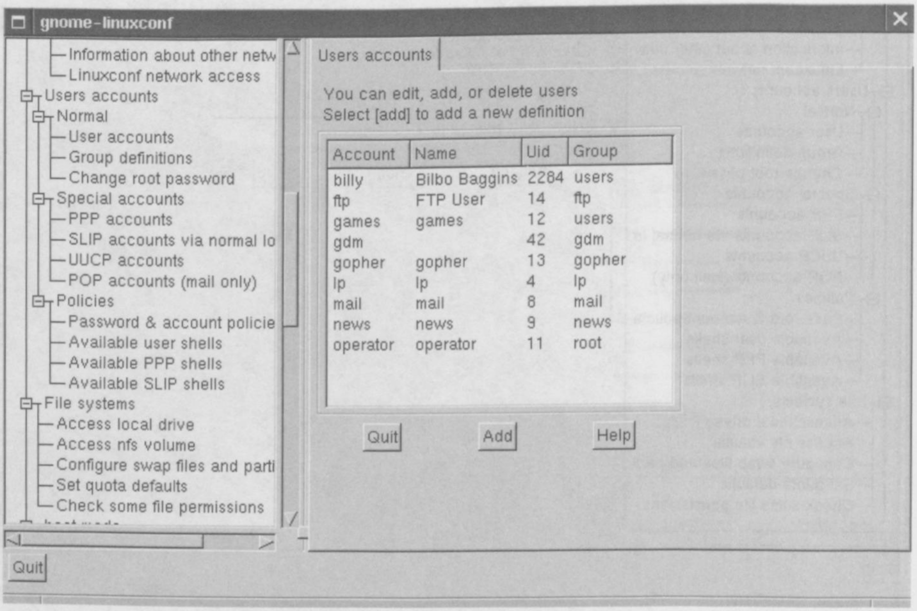
When you've finished, you'll see the account listed in the accounts panel (see figure 15.12 for an example).

That's all there is to it.

For additional security, you should change your passwords every now and then. From your user account, you can change your password by clicking on the account name, then clicking on the box marked **Passwd** at the bottom.

> **Tip:** Now that you've created your user account, you might want to reconsider whether your root account's password is secure enough. You can change this password easily, from within Linuxconf, by clicking on the **Change root password** item.

To learn more about how to modify your account or perform other account procedures, turn to the


gnome-linuxconf
Information about other netw
Linuxconf network access
Users accounts
Normal
User accounts
Group definitions
Change root password
Special accounts
PPP accounts
SLIP accounts via normal lo
UUCP accounts
POP accounts (mail only)
Policies
Password & account policie
Available user shells
Available PPP shells
Available SLIP shells
File systems
Access local drive
Access nfs volume
Configure swap files and parti
Set quota defaults
Check some file permissions
Users accounts
Quit
Add
Help
Quit

You can edit, add, or delete users
Select [add] to add a new definition

| Account | Name | Uid | Group |
|---|---|---|---|
| billy | Bilbo Baggins | 2284 | users |
| ftp | FTP User | 14 | ftp |
| games | games | 12 | users |
| gdm | | 42 | gdm |
| gopher | gopher | 13 | gopher |
| lp | lp | 4 | lp |
| mail | mail | 8 | mail |
| news | news | 9 | news |
| operator | operator | 11 | root |

Figure 15.12: The new user account in Linuxconf

System Configuration chapter in the Red Hat Linux Installation Guide.

From the shell prompt:

At the prompt, type `useradd billy`. It should look like this:

```
[root@localhost root]# useradd billy
[root@localhost root]#
```

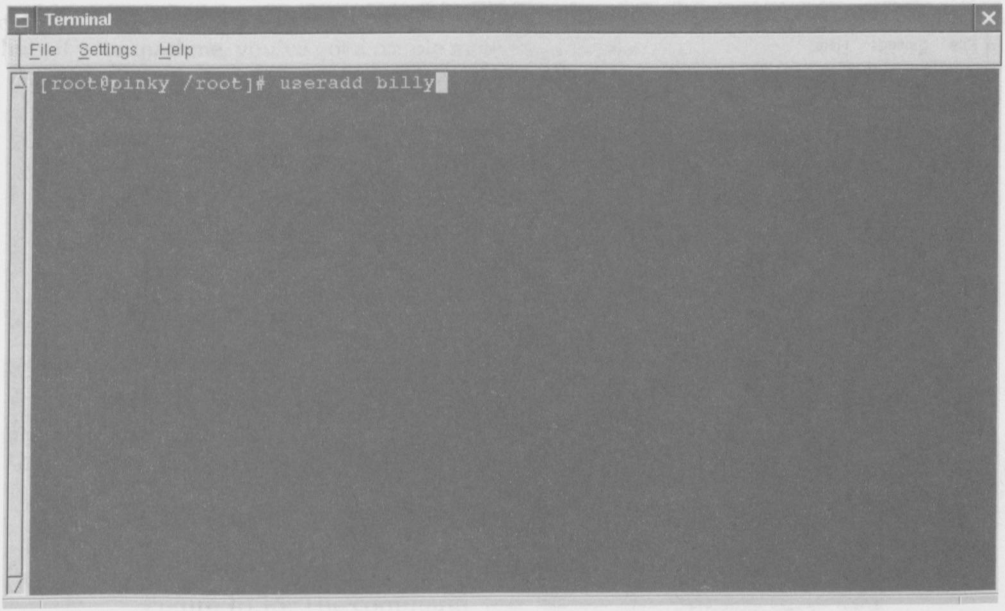
(See figure 15.13.)

Looks like nothing's changed, right? Wrong. Although you've got the same prompt, an entry has already been made for the new account. Now, it's time to specify a password.

At the prompt, type `passwd billy`. It should look like this:

```
[root@localhost root]# passwd billy
[root@localhost root]#
```

(See figure 15.14.)



```
[root@pinky /root]# useradd billy
```

Figure 15.13: Adding a user at the shell prompt

Remember that the password must be easy to recall and a unique mixture of letters, symbols and/or numbers.

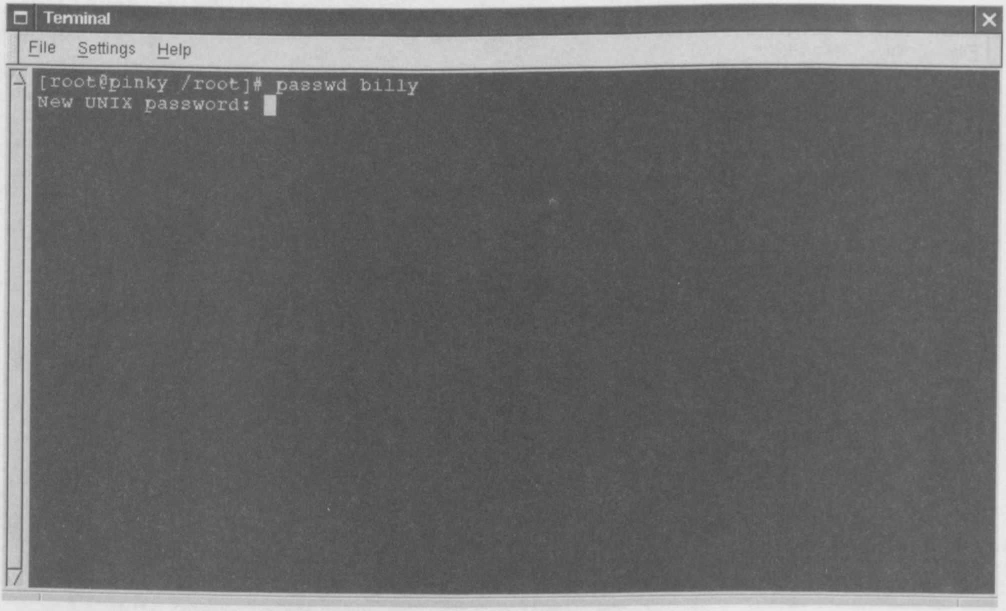
That's it.

From now on, whenever you want to add a user, change account information or change account passwords – including the root password – either `useradd` or `linuxconf` will fit the bill. Make sure you're logged in as the root user, however.

> **Tip:** If you find yourself switching around frequently between the root account and your user account, it can become confusing to know which account you're actually logged into. You can always tell you're in the root account you see the word `[root` at the start of the shell prompt or the hash mark (#) at the end. If you see (for example) `[billy`, or the dollar sign ($), you're working in your user account.

Regardless of the method you choose – from the shell prompt or from Linuxconf – your new user account's "login directory" will be placed in a subdirectory of /home.

To finish up and try out your new account, log out from your root account.



```
[root@pinky /root]# passwd billy
New UNIX password: 
```

Figure 15.14: Adding a password at the shell prompt

You'll be taken back to the login screen.

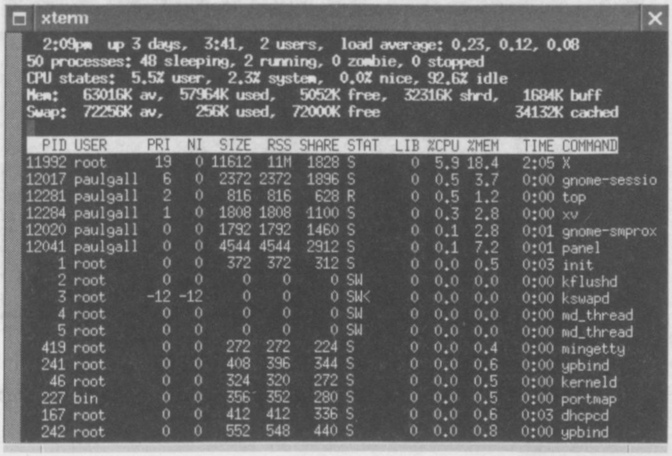
Now, you can log in to your new user account.

> **Summary: From X** – In a terminal emulation window, type `linuxconf`. Scroll to **User Accounts** ⇒ **Normal** ⇒ **User Accounts**. Click on **Add**. **From the shell prompt** – type `useradd (accountname)`; at the shell prompt again, type `passwd accountname`. Type and re-type password.

## 15.7 Shutting Down

Some day, computers will probably be as easy to use as televisions are today (no, we're not there yet...). Maybe we'll have remote controls to navigate easily between features and to turn off the machine.

At present, though, you can't simply turn off your computer when you're finished. You can always log out from your account, which will return you to your login screen, but if you want to completely shut off your machine, you've got a couple more steps to take.



```
  2:09pm  up 3 days,  3:41,  2 users,  load average: 0.23, 0.12, 0.08
50 processes: 48 sleeping, 2 running, 0 zombie, 0 stopped
CPU states:  5.5% user,  2.3% system,  0.0% nice, 92.6% idle
Mem:   63016K av,  57964K used,   5052K free,  32316K shrd,   1684K buff
Swap:  72256K av,    256K used,  72000K free                  34132K cached

  PID USER      PRI  NI  SIZE  RSS SHARE STAT  LIB %CPU %MEM   TIME COMMAND
11992 root       19   0 11612  11M  1828 S       0  5.9 18.4   2:05 X
12017 paulgall    6   0  2372 2372  1896 S       0  0.5  3.7   0:00 gnome-sessio
12281 paulgall    2   0   816  816   628 R       0  0.5  1.2   0:00 top
12284 paulgall    1   0  1808 1808  1100 S       0  0.3  2.8   0:00 xv
12020 paulgall    0   0  1792 1792  1460 S       0  0.1  2.8   0:01 gnome-smprox
12041 paulgall    0   0  4544 4544  2912 S       0  0.1  7.2   0:01 panel
    1 root        0   0   372  372   312 S       0  0.0  0.5   0:03 init
    2 root        0   0     0    0     0 SW      0  0.0  0.0   0:00 kflushd
    3 root      -12 -12     0    0     0 SW<     0  0.0  0.0   0:00 kswapd
    4 root        0   0     0    0     0 SW      0  0.0  0.0   0:00 md_thread
    5 root        0   0     0    0     0 SW      0  0.0  0.0   0:00 md_thread
  419 root        0   0   272  272   224 S       0  0.0  0.4   0:00 mingetty
  241 root        0   0   408  396   344 S       0  0.0  0.6   0:00 ypbind
   46 root        0   0   324  320   272 S       0  0.0  0.5   0:00 kerneld
  227 bin         0   0   356  352   280 S       0  0.0  0.5   0:00 portmap
  167 root        0   0   412  412   336 S       0  0.0  0.6   0:03 dhcpcd
  242 root        0   0   552  548   440 S       0  0.0  0.8   0:00 ypbind
```

Figure 15.15: The command 'top' shows you running processes

Here's why: Even though you may not be typing, listening to music or browsing with Netscape, your machine is still working on a variety of processes in the background. (A process is a program which is being executed. Multiple processes are running all the time on your system.)

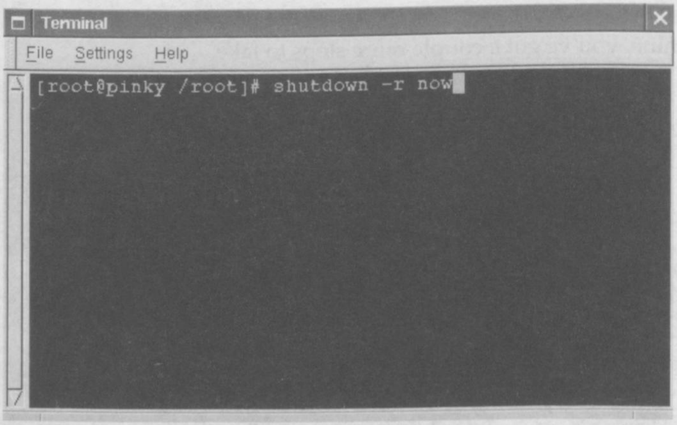
> **Tip:** Curious to take a peek? Just go to a shell prompt and type `top`. You'll see the processes that are currently running (see figure 15.15). To quit this view, type Q.
>
> (To learn more about the top command, type `man top` at the shell prompt; to move forward a screen, press the Spacebar; to move back a screen, press B; to quit, press Q. You'll learn more about these "man pages" later in this chapter.)

Like a faithful assistant, your Linux system is carrying out tasks silently all the time. You can't just turn out the lights and lock the door on your assistant. Instead, you've got to give them time to put away their work and make sure everything's in its proper place before saying "good night."

To shutdown or reboot while you're in GNOME, exit from your X session (**panel** ⇒ **Log out**). Once you're at the login screen, left-click on **Options**, and select **Halt** or **Reboot**.

You'll then be asked whether you want to stop or restart your machine. Choose `Halt` to shutdown your machine; chooseRestart to restart, or "reboot" your machine.

At the shell prompt, you can reboot or halt your system from your root account.



```
[root@pinky /root]# shutdown -r now
```

Figure 15.16: The `shutdown` command at the shell prompt

To reboot from the prompt, type:

```
shutdown -r now
```

(See figure 15.16.)

Or, if you want to exit from your system and turn off your machine, type:

```
shutdown -h now
```

The `-r` option stands for "reboot," while the `-h` option means "halt." Stating `now` means that you want to perform this action immediately.

**Please Note:** Remember to save your work and exit from any applications which may be running before you perform a shutdown from the shell prompt, because you could lose work.

If you choose to halt the system, you'll see a list of messages about which services are stopping; then, you'll see:

```
The system is halted
```

Now everything's put away and it's safe to turn off your computer.

**Tip:** Try substituting `+5` for `now`; you'll find that you've just commanded your assistant to put everything away and stop working in five minutes.

You can learn more about the shutdown command by typing:

```
man shutdown
```

at a shell prompt. You'll be presented with a "man page," which will tell you about this command.

To go forward a screen, press the Spacebar; to go back a screen, press B; and to quit, press Q.

**Summary:** To shutdown or reboot from GNOME, from the log in screen, go to **Options** ⇒ **Halt** or **Reboot**. From the shell prompt: Log in as root, and type `shutdown -r now` (to reboot) or `shutdown -h now` (to halt).

## 15.8 Pulling Yourself Up by the Boot

When you're logged in as the root account, you might want to take a few minutes to create a fresh "boot diskette" or copy the diskette you already have.

There are a number of reasons you should make a boot diskette: it can help you recover from a system failure, it can help you test a new kernel you've downloaded and compiled and it can help you share your computer with more than one operating system.

**Tip:** You can always use a copy of the boot diskette to form the first half of a rescue disk set. You'll need a boot diskette and a rescue diskette to enter rescue mode. To read more about rescue mode, see later in this chapter.

You were given the opportunity to make a boot disk when you installed Red Hat Linux. If you chose not to make a boot disk at installation, here's your chance to start from scratch.

For now, we'll make boot disks from the shell prompt while we're in an X session.

Go to the shell prompt: In GNOME, for example, left-click on the **GNOME footprint** on the panel, go to **Utilities** in the menu and click on one of the items marked **xterm** or on the **GNOME terminal** item.

Now, make sure you're logged in as root. At the shell prompt, if you see something like `[billy@localhost billy]`, for example, type:

```
[billy@localhost billy]$ su
Password: yourrootpassword
[root@localhost billy]#
```

This will allow you to change from your regular user account to the root account.

**Please Note:** when you're in the root account, you are commander in chief of everything on your system, so be careful.

> **Tip:** The command `su` means substitute users, which lets you log into temporarily log in as another user.

Briefly, we'll find the Linux kernel version; then, we'll use the `mkbootdisk` command to make a bootable floppy from the kernel.

Put a standard diskette in the floppy drive.

> **Tip:** In Linux, the floppy drive is referred to as `/dev/fd0`.

If you've previously used the diskette, remember: You will lose anything that had been on that diskette!

Now, at the prompt, type:

```
cd /lib/modules
```

(Shown in figure 15.17.)

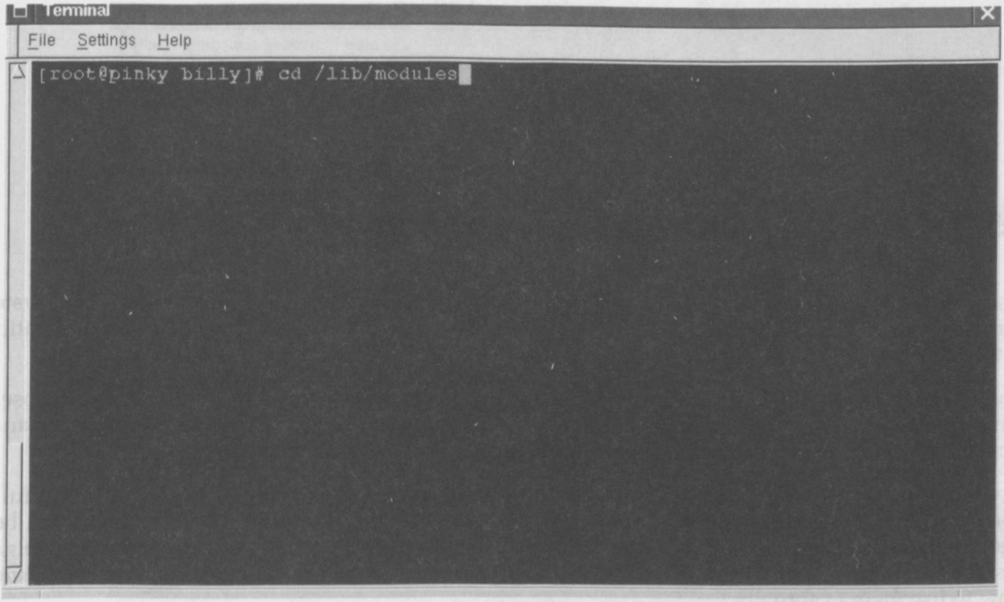
Now, type:

```
ls
```

The command `ls` will list the contents of a directory. (You can learn more about the `cd` and `ls` commands in Chapter 16 on page 217). For now, just type the commands as you see them.)

Here, you can find the kernel version of your Red Hat Linux system. The kernel is the heart of any Linux system. Your kernel version will be something similar to:

```
2.2.x-yy
```



```
[root@pinky billy]# cd /lib/modules
```

Figure 15.17: Changing directories to `/lib/modules`

(there will be several numbers after 2.2, as in 2.2.2-0.1 or 2.2.5-1).

Now that you've found the kernel version, you can tell the `mkbootdisk` command which kernel to copy to your floppy. (If you don't tell `mkbootdisk` where to copy the kernel, it will default to copying to the floppy in /dev/fd0.)

Just type:

```
mkbootdisk --device /dev/fd0 2.2.5-1
```

Then press Enter.

**Tip:** If your screen becomes a little crowded with commands and "command not founds," you can always start with a clean slate by typing `clear` at the prompt.

You're done.

**Summary:** As root, in a terminal window, `cd /lib/modules`; choose kernel number; then type `mkbootdisk --device /dev/fd0 kernel.number`.

To clean the display, type `clear`.

## 15.9 A Good "Man" Is Easy to Find

As you investigate your new system, you're bound to have questions about commands and system services. One of the easiest ways to find out about how to use many commands or some applications is through the `man` command.

The word `man` stands for "manual", a series of online "pages" which can tell you the purpose of many commands. In a highly condensed format, man pages provide a summary of a command's purpose, the options available and the syntax which is used to issue the command.

If you count yourself among the "newbies" to Linux, you might not find man pages as useful as someone who's more accustomed to their terse delivery of information. But man pages can help steer you toward the proper way to use commands on your system. Even at this point, you can gain insight into your system by familiarizing yourself with the man pages. You'll certainly want to know how to use them eventually.

There are several ways to view the man pages: from GNOME's Help Browser, from an application called `xman` or from the shell prompt.

GNOME's Help browser:

To start GNOME's Help Browser, go to **Panel** ⇒ **Help system**. The GNOME Help Browser will start. On the first page, you'll find links to the man pages and to other helpful documentation.

**Tip:** Read about how to get more from GNOME in the GNOME User's Guide in this manual. For more information about man pages, take a look at the **Finding Documentation** chapter in the Red Hat Linux Installation Guide.

From `xman`:

Depending on your window manager, there will be different ways to access the graphical presentation of the man pages through the menus. (Window managers literally manage how the windows in your X session are presented.)

A quick way to start the manual browser, however, is to go to a shell prompt and type:

```
xman
```

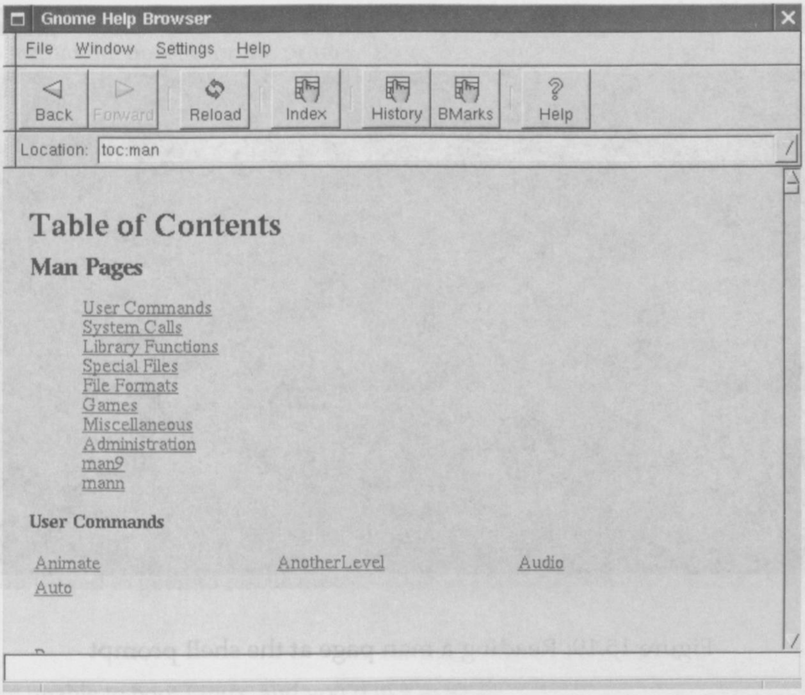


Table of Contents

Man Pages

User Commands
System Calls
Library Functions
Special Files
File Formats
Games
Miscellaneous
Administration
man9
mann

User Commands

Animate
AnotherLevel
Audio
Auto

Figure 15.18: Man page index in GNOME's Help Browser

which will start the X Window System manual browser. When the menu appears, click on **Manual Page**. From here, you'll have a number of options from which to find a man page: You can alphabetically display all the man pages on your system; search for them by command or by the section in which they appear.

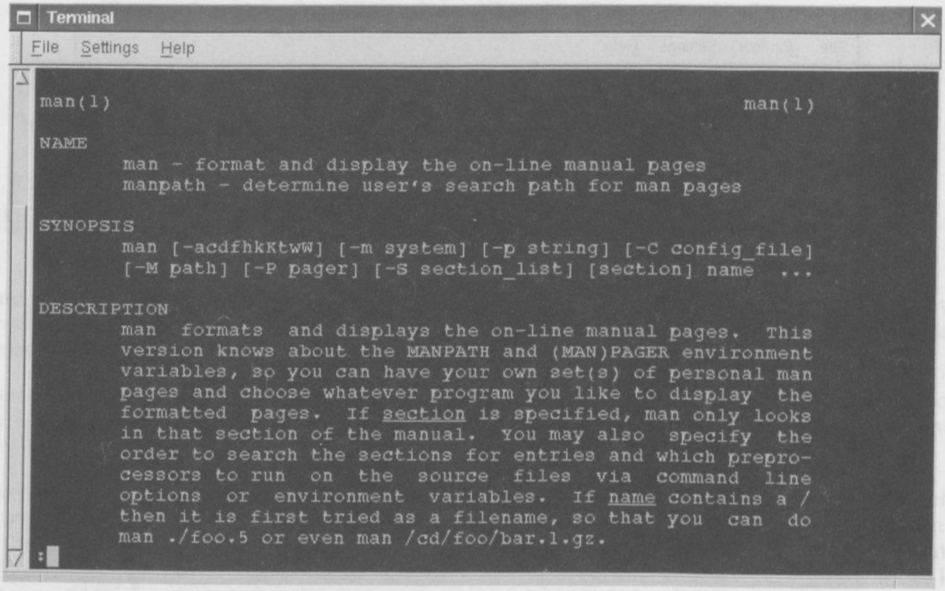
To see the scope of help available, bring up your manual browser, then click on **Manual Page** then, under **Options**, click on **Display Directory**. Here, you'll find the complete list of man pages available to you.

From the shell prompt:

If you're not in an X session, you can still read the man pages by typing

```
man pagename
```

at the shell prompt. To scroll forward through the document, press Space; to scroll back, press B. To quit the document, press Q.



```
man(1)                                                    man(1)

NAME
       man - format and display the on-line manual pages
       manpath - determine user's search path for man pages

SYNOPSIS
       man [-acdfhkKtwW] [-m system] [-p string] [-C config_file]
       [-M path] [-P pager] [-S section_list] [section] name  ...

DESCRIPTION
       man  formats  and displays the on-line manual pages.  This
       version knows about the MANPATH and (MAN)PAGER environment
       variables, so you can have your own set(s) of personal man
       pages and choose whatever program you like to display  the
       formatted  pages.  If section is specified, man only looks
       in that section of the manual.  You may also  specify  the
       order to search the sections for entries and which prepro-
       cessors to run  on  the  source  files  via  command  line
       options  or  environment  variables.  If name contains a /
       then it is first tried as a filename, so that you  can  do
       man ./foo.5 or even man /cd/foo/bar.1.gz.
:
```

Figure 15.19: Reading a man page at the shell prompt

Of course, like any good help system, the man command has its own man page. At the prompt, type

```
man man
```

to display the manual page (as shown in figure 15.19).

If you want to print:

Sometimes, just viewing the man page on the screen isn't enough; you may want to have a printed copy in front of you. Although you could send the page to a printer, because of certain text formatting in the man pages, you'd likely end up with a document filled with "garbage," symbols which didn't translate from your screen to the printer.

Before you print, then, you may have to "strip" the formatting from the page, which you can do with the `col` command. (As you might guess, there's a man page for `col`, also.)

For example, to print a man page for the `man`, type:

```
man man | col -b | lpr
```

In detail, the above command "sends" the output of the manual page entry through the `col` filter, which helps format the output for the printer. Then, the output from `col` is sent to the printer. This is called *piping*, and you can learn more about it in Chapter 16 on page 217.

## 15.10 What is Rescue Mode?

Rescue mode is a term used to describe a method of booting a small Linux environment completely from diskettes.

What follows in this section may help you recover from a problem at some point. A copy of these instructions is also available as `rescue.txt` on your Red Hat Linux 6.0 CD-ROM.

As the name implies, rescue mode is there to rescue you from something. In normal operation, your Red Hat Linux system uses files located on your system's hard drive to do everything – run programs, store your files, and more.

However, there may be times when you are unable to get Linux running completely enough to access its files on your system's hard drive. By using rescue mode, it's possible to access the files stored on your system's hard drive, even if you can't actually run Linux from that hard drive.

Normally, you'll need to get into rescue mode for one of two reasons:

- You are unable to boot Linux, and you'd like to fix it.
- You are having hardware or software problems, and you want to get a few important files off your system's hard drive.

Let's take a closer look at each these scenarios.

**Unable to boot Linux** – Many times this is caused by the installation of another operating system after you've installed Red Hat Linux. Some other operating systems assume that you have no other operating systems on your computer, and overwrite the Master Boot Record (or MBR) that originally contained the LILO bootloader. If LILO is overwritten in this manner, you're out of luck – unless you can get into rescue mode.

**Hardware/software problems** – There can be as many different situations under this category as there are systems running Linux. Things like failing hard drives and forgetting to run LILO after building a new kernel are just two things than can keep you from booting Red Hat Linux. If you can get into rescue mode, you might be able to resolve the problem – or at least get copies of your most important files.

What do you need to get into rescue mode?

To get into rescue mode, you'll need a rescue disk set. These are two diskettes that contain the files necessary to boot into rescue mode.

If you elected to make a boot diskette while you were installing Red Hat Linux, you're halfway there! The first diskette in a rescue disk set is this boot diskette.

Now on to the second diskette…

The second diskette is called the rescue diskette. It is produced by writing an *image file* onto a diskette. The image file is called `rescue.img`, and is located in the images directory on the first Red Hat Linux CD-ROM.

To gain access to this file, you'll first need to mount your Red Hat Linux CD-ROM.

Start by inserting the CD-ROM in your system's CD-ROM drive. You'll need to do this while logged in as root.

Type the following command:

```
mkdir /mnt/cdrom
```

Now, type:

```
mount /dev/cdrom /mnt/cdrom
```

You may get an error message from the first command saying that the file exists. That's fine; we just want to make sure that there is a `/mnt/cdrom` directory on your system. The second command should issue an informational message that `/dev/cdrom` is being mounted read-only.

**Please Note:** Some systems may not recognize `/dev/cdrom`. If this is your case, you'll have to replace `/dev/cdrom` in the command with the appropriate device name for your CD-ROM.

Next, issue the following command (again, while logged in as root):

```
cd /mnt/cdrom/images
```

then type:

```
ls
```

to list the contents of the images directory.

You should see a file named `rescue.img`. This is the rescue diskette image file. Next, put a diskette in your first diskette drive, and enter the following command:

```
dd if=rescue.img of=/dev/fd0 bs=1440k
```

Your system's diskette drive should start writing to the diskette. After a minute or so, the `dd` command will complete, and you'll get your shell prompt back.

Wait for your diskette drive's access light to go out, and that's it!

You now have a rescue disk set. Label this diskette something like "Red Hat Linux 6.0 rescue diskette" and store it someplace safe.

Let's hope you never have to use it.

If you should ever need to use rescue mode, here's how.

Boot your system with the boot diskette in the first diskette drive. At the `LILO Boot:` prompt, enter the word `rescue`. You will see the usual kernel messages as the Linux kernel starts up.

Eventually, it will ask you to insert the next diskette, and press Enter. Remove the boot diskette, insert the rescue diskette, and press Enter.

The rescue diskette will be read into memory. After a minute or so, you should see the shell prompt. That's it – you're in rescue mode!

Now what?

When it comes to rescue mode, that's a bit like asking, "how long is a piece of string?" What you require depends a great deal on what your system's problem is, your level of Linux expertise, and several variables we haven't even thought of yet. So we can't give you explicit instructions.

But we can tell you what programs you have access to while in rescue mode.

Here's the list:

```
badblocks     bash       bzip2
cat           chmod      chroot
cp            cpio       dd
e2fsck        fdisk      grep
gunzip        gzip       head
ifconfig      init       ln
ls            lsmod      mkdir
mke2fs        mknod      mount
mt            mv         open
pico          ping       ps
restore       rm         route
rpm           sed        sh
swapoff       swapon     sync
tac           tail       tar
traceroute    umount     vi
vim
```

You're likely to be unfamiliar with most, if not all of these commands. However, the commands do have *man pages*. Once you begin to feel more comfortable with commands, you should consider familiarizing yourself them through the man pages. (You may not have that luxury if you have to use these commands...)

You've worked with some pretty useful commands for your Red Hat Linux system so far. You may not have known much about where those files were in the directory, however.

For more information about the Linux filesystem, including navigation and working with other useful commands to help you understand your system, turn to the next chapter.

# 16

# You Are Here

Let's say you want to buy a pair of sneakers at a nearby shopping mall. You may not be familiar with the mall, but that shouldn't be a problem.

Why not? Because of the maps, which you can usually find near all the major entrances to the mall.

The same can be said for your Red Hat Linux system: Navigation's easy once you know where you're going.

> **Tip:** Make sure you've logged into your user account! Remember that unless you like to live on the wild - and dangerous - side, using a root account for all your activities is toying with disaster. If you haven't created your user account yet, turn to Chapter 15 on page 187 and do it now. Really… no kidding…

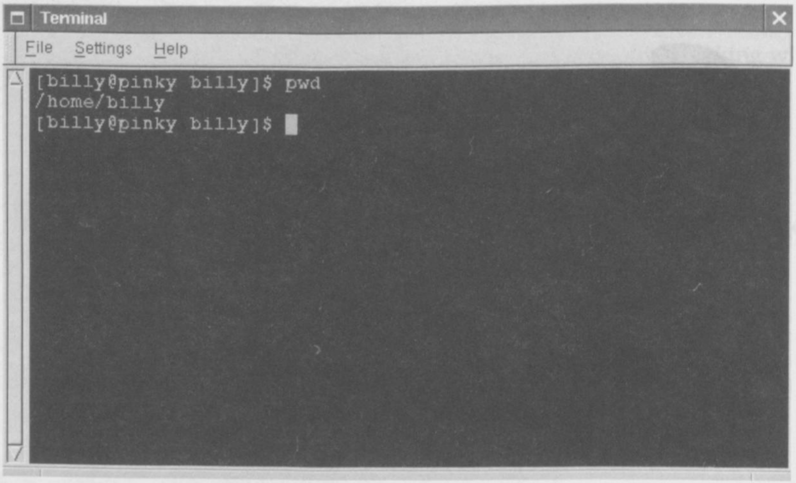
## 16.1 Finding Yourself With `pwd`

Sooner or later (probably sooner), when you start looking through directories, you're bound to ask, "Where the heck am I?" And you won't be speaking philosophically.

DOS can answer that question just by showing you at the prompt like:

```
C:GAMES\Quake\ID1>
```

Your Linux system, by default, just shows your current directory.



```
[billy@pinky billy]$ pwd
/home/billy
[billy@pinky billy]$
```

Figure 16.1: The command pwd shows you where you are

Try this: open an `xterm` window. You'll see something like:

```
[billy@localhost billy]$
```

Now type:

```
pwd
```

What do you see? Something like

```
/home/billy
```

The command `pwd` stands for *print working directory*. When you typed `pwd`, you were asking your Linux system, "where am I?" Your system responded by "printing" the directory you're in to the monitor (as shown in Figure 16.1).

Seems easy, right? It ought to be; you'll be using `pwd` plenty as you look around. (Even Linux gurus depend on this little command.)

## 16.2 Getting From Here to There: `cd`

Whenever you want to change directories, all you've got to do is type:

```
cd
```

Go ahead, try it. In an xterm window, type:

```
cd
```

That didn't do much, did it? That's because you didn't tell your system where you wanted to go.

Whether you're going to a store in a mall or to visit relatives across the country, you've got to know how to get from one point to another. That is, you'll need to know the path to follow.

As with anything in life, the path – or, pathname – is basically the set of directions that takes you from one point to another. In the case of your Linux system (and in the DOS/Windows world, as well), you state a path to take you from one directory or file to another.

Let's try it again. Open an `xterm` window. Find yourself first with the `pwd` command. When you type your commands, your window will look like:

```
[billy@localhost billy]$ pwd
/home/billy
[billy@localhost billy]$
```

Now that you see where you are, you can start to give your system the path to follow.

Well, almost…

Try typing:

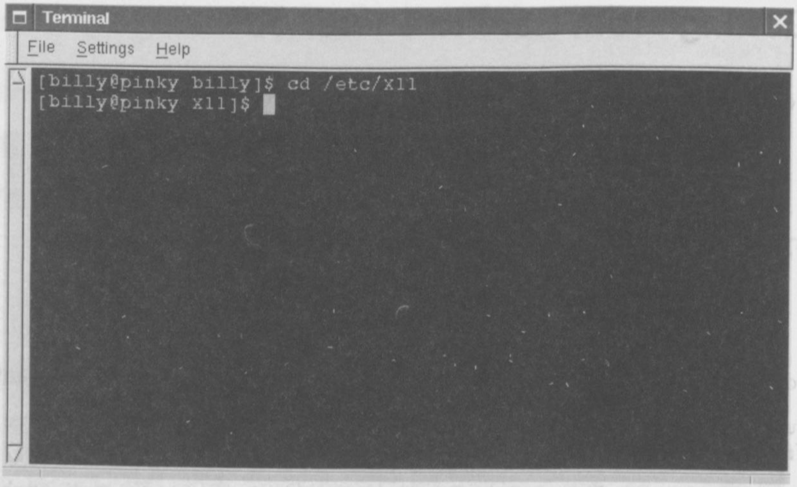
```
cd home
```

What happened? You know there's a directory called `home`, and you typed in the path. So what does this "no such file or directory" mean?

It means your path is incomplete.

Try typing:

```
cd /home
```



```
[billy@pinky billy]$ cd /etc/X11
[billy@pinky X11]$ 
```

Figure 16.2: Absolute pathnames state out the full path

Now you've successfully changed directories and moved from your login directory into the subdirectory called `home`.

The difference, of course, was adding the forward slash.

Let's take a second to look at the reason adding a slash made all the difference.

When you saw you were in `/home/billy`, you were looking at the full path – or the absolute path from the root directory. You can think of the `billy` directory as being located two directories "down" from the root, which is the topmost level of your system.

So when you typed:

```
cd /home
```

you were actually saying "go to the root directory, then go to the directory called home, which is one directory below the root." You specified an absolute path to get to the `home` directory (see, for example, Figure 16.2).

Now, if you type:

```
cd /
```

you'll end up with a prompt that looks like:

```
[billy@localhost /]$
```

That single forward slash means you're at the root. When you're at the root, you can't go any higher on your system (the same is true in DOS/Windows).

To get back to your login directory from the root directory by using the absolute path, just type:

```
cd /home/billy
```

You're home.

Using the absolute path is just one way to move around. Another method of getting from one point to another is by using the relative path (as in Figure 16.3).

Let's go back to the `root` directory:

```
cd /
```

Now, let's move *back* to your login directory using relative pathnames:

```
cd home/billy
```

Notice that the `/` is missing? That's because the root directory is the *parent* of the `home` directory, which means that the `home` directory is one step down from the root directory. Since `home` is the parent of the directory called `billy`, these two directories are separated with a `/`.

If you're in your login directory, you can move up one directory, to home, just by typing:

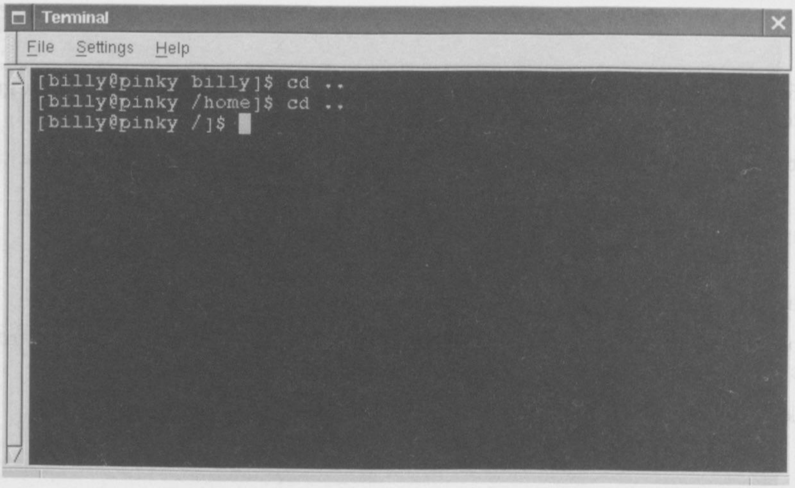
```
cd ..
```

The relative path describes the directory you want to `cd` to in terms which are relative to your current directory.

When you typed `cd ..`, you were saying "go up one directory." The next directory up, from your login directory, was `home`.

> **Tip:** When speaking of directories which hold other directories, you can refer to them as *parent directories*. In our case, `home` is the parent directory of `billy`.

Using two dots (..) when you `cd` is the same as stating you want to go to the parent of your current working directory. Try using a single dot. Type:



```
[billy@pinky billy]$ cd ..
[billy@pinky /home]$ cd ..
[billy@pinky /]$ 
```

Figure 16.3: Relative pathnames are 'relative' to your current position

```
cd .
```

What happened? Not much. That's because using a single dot (.) is the same as specifying your current working directory.

The differences between absolute and relative paths can sometimes be pretty striking.

Getting back to our shopping mall analogy, if you were to give directions by using an absolute path, you might say something like:

"Get your car keys. Get in the car. Start the car. Pull out of the driveway. Drive to the corner…"

…And so on, until you're finally standing inside your favorite shoe store in the shopping mall.

When you're using a relative path, you're saying something like:

"The store's a couple miles from here, in the shopping mall."

That's quite an exaggeration, but you get the idea: As long as you know where you want to go in relation to where you are, you can use relative paths.

> **Tip:** A path is absolute if the first character is a `/`; otherwise, it's a relative path.

You're now in the `home` directory, the parent of your login directory. Type:

```
cd ..
```

and you'll find yourself at the root directory.

Using relative paths, get yourself back to your login directory by typing:

```
cd home/billy
```

Doesn't look much different from absolute paths, does it? Notice, though, that there's no forward slash in front of `home`. In essence, you were saying, "go one directory down, to `home`, then go to `billy`, in the `home` directory."

> **Tip:** Whenever you want to quickly jump back to your login directory just type `cd ~` anywhere in the system.

That wasn't much of a demonstration.

Try this: from your login directory, type:

```
cd ../../etc/X11
```

Now, you're in the directory `X11`, which is where you'll find configuration files and directories related to the X Window System.

**Please Note:** You can always type `pwd` to find out where you are in the directory tree. And you can get back to your login directory with the `cd ~` command.

Take a look at your last `cd` command. What you were really telling your system was, "go up to the parent directory, then up to that directory's parent directory (which is the root directory), then go to the `etc` directory and from there, to the `X11` directory."

Using an absolute path would also get you to the `X11` quickly. Type:

```
cd /etc/X11
```

and you're there.

> **Tip:** Always make sure you know which working directory you're in before you state the relative path to the directory or file you want to get to. You don't have to worry about your position in the filesystem, though, when you state the absolute path to another directory or file.

Now that you're starting to get the hang of changing directories, see what happens when you change to root's login directory.

```
cd /root
```

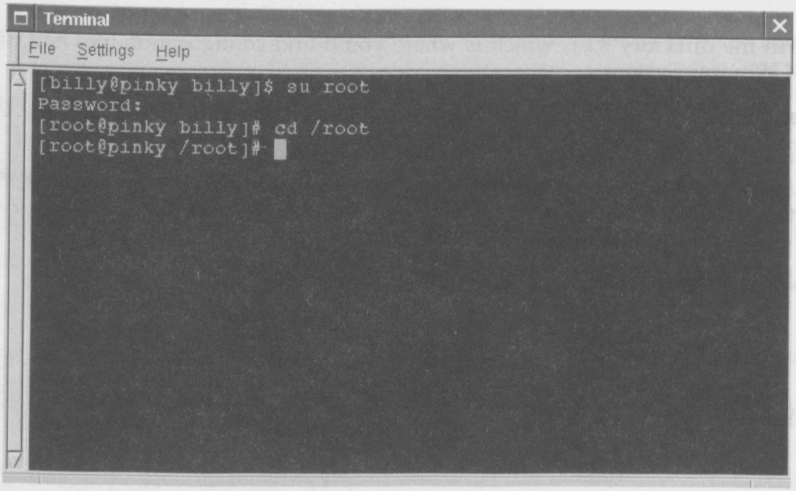
Oops... You're not logged in as root, so you're "denied permission" to access that directory.

Denying access to the root and other users' accounts (or *login directories*) is one way your Linux system prevents accidental or malicious tampering. You'll find out more about file "ownership" and permissions later in this chapter.

Really want to change to the root login? Then you've got to use the `su` command. Type this series of commands:

```
[billy@localhost billy]$ su root
Password: (your root password)
[root@localhost billy]# cd /root
[root@localhost /root]#
```

As soon as you give the root password, you'll see the changes in your command prompt to show your new, superuser status: the `root` account designation at the front of the prompt and # at the end (as shown in Figure 16.4).



```
[billy@pinky billy]$ su root
Password:
[root@pinky billy]# cd /root
[root@pinky /root]#
```

Figure 16.4: Becoming root

Now, when you `cd` to root's login directory, you'll be granted access.

When you're done being root, just type `exit` at the prompt.

```
[root@localhost /root]# exit
exit
[billy@localhost billy]$
```

> **Summary:** To change directories using absolute pathnames, type `cd/directory/directory`; to change directories using relative pathnames, type `cd directory` to move one directory below, `cd directory/directory` to move two directories below, etc.; to jump from anywhere on the filesystem to your login directory, type `cd ~` ; to change to the parent of the directory you're in, type `cd ..` Use `.` to refer to your current directory.

## 16.3 Looking Around With `ls`

Now that you know how to move around, it's time to take a look at what's in the directories.

But first, let's make sure you've got something you can look for in your login directory before we go any further.

You can start by creating an empty file. To do so, you can use a utility called `touch` at the shell prompt. Try it; type:

```
touch foo.bar
```

Now, in your login directory, you've got an empty file called `foo.bar`. You'll see it in a couple minutes.

Let's also create a new directory, using the `mkdir` command.

At the prompt, type:

```
mkdir tigger
```

Now, you've created a directory called `tigger` in your login directory. From root, your new directory's absolute pathname would be `/home/yourlogin/tigger`, and your directory is the parent of `tigger`. (You can learn more about creating – and removing – files and directories in Chapter 17 on page 255.)

Now, you're ready to go.

In the DOS world, using the `dir` command will display the contents of a directory.

The same can be said of Linux – with some notable exceptions.

In Linux, `dir` won't fully display the contents of directories, and doesn't have the power or flexibility of the list command – `ls`.

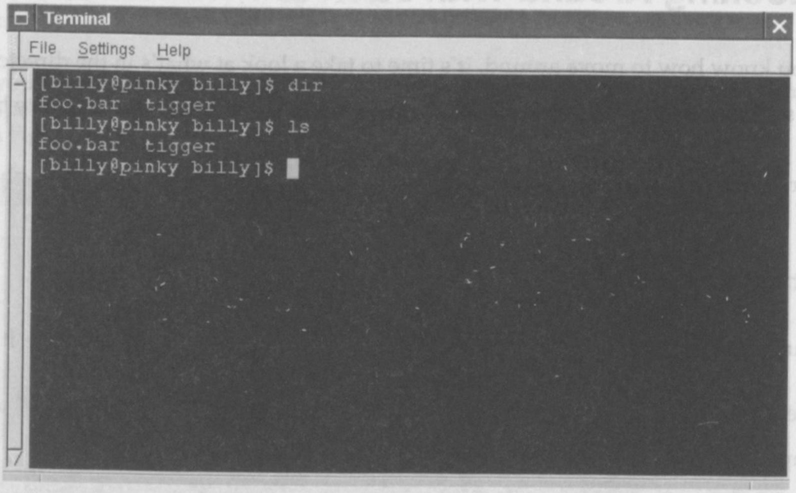
In your login directory, for example, type:

```
dir
```

Now, in the same xterm window, type:

```
ls
```

Looks the same (see Figure 16.5). You see, among other contents, your new file, `foo.bar` and the new directory, `tigger`.



```
[billy@pinky billy]$ dir
foo.bar  tigger
[billy@pinky billy]$ ls
foo.bar  tigger
[billy@pinky billy]$ 
```

Figure 16.5: The `dir` and `ls` commands seem similar

But here the similarities end. Where `dir` shows you the contents of your directory, it doesn't actually show you everything. Even using the `ls` command, by itself, won't show you all the files in your directory. To see everything, you've got to call upon an option or two.

For example, in the same window that you'd used to type the `dir` and `ls` commands, now type:

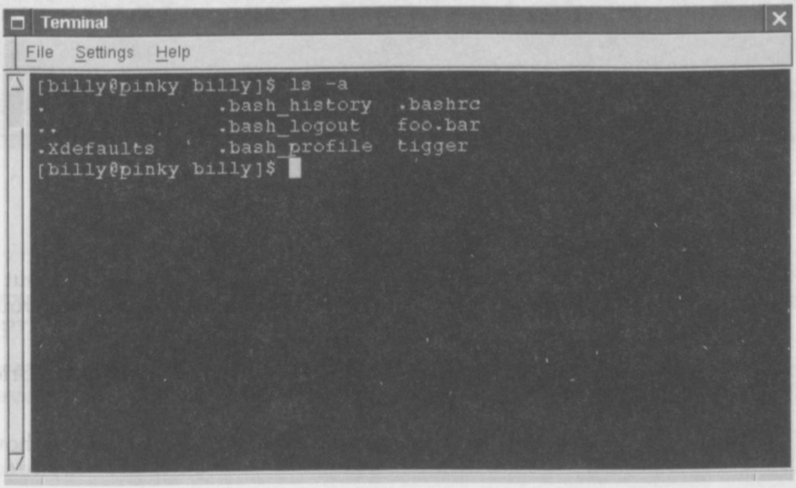
```
ls -a
```

Quite a difference. When you added the `-a` option, you were specifying that you wanted to list *all* the files in the directory (see Figure 16.6).

In fact, there are a multitude of options available with the `ls` command.

> **Tip:** If you want to see all the options of the `ls` command, you can read the man page by typing `man ls` at a shell prompt. If you want to print the man page, type `man ls | col -b | lpr` at the prompt.

Why so many options? Because they can help you sort information according to your needs. For example, you can specify how files are displayed, see their *permissions* and much more.



```
[billy@pinky billy]$ ls -a
.                  .bash_history   .bashrc
..                 .bash_logout    foo.bar
.Xdefaults         .bash_profile   tigger
[billy@pinky billy]$
```

Figure 16.6: The ls command with the -a option

When you typed `ls -a`, you probably noticed the files that begin with dots. These are called *hidden files* or, appropriately enough, *dot files*.

Hidden files are mostly configuration files which set preferences in programs, window managers, shells and more. The reason they're "hidden" is to help prevent any accidental tampering by the user.

Whenever a filename starts with a dot (.), it's a hidden file, and `ls` won't list it.

Viewing all the files can give you plenty of detail, but there's more you can uncover, simply by adding more than one option.

If we want to see the size of a file or directory, when it was created and more, we can just add the "long" option (`-l`) to our `ls -a` command.

Try it. Type:

```
ls -al
```

There's quite a bit more detail now. You can see the file creation date, its size, ownership, permissions and more.

You don't have to be in the directory whose contents you want to view, either.

Let's see what's in the `/etc` directory by typing:

```
ls -al /etc
```

Here, you'll get plenty of information about the contents of the `/etc` directory.

If you want to add color to your listing, just include the `--color` option.

```
ls -al --color /etc
```

To some, adding `--color` does more than add a splash of color; it gives a clue about the types of files in a directory. For example, directories might all be a royal blue, program files would be green, and so on.

If you like what you see, here's how you can display the listing in color all the time. Briefly, we'll be adding one line to the `.bashrc` file in our login directory.

The `.bashrc` file is used by your shell when you login (an example `.bashrc` file is shown in Figure 16.7).

Now before we go any further...

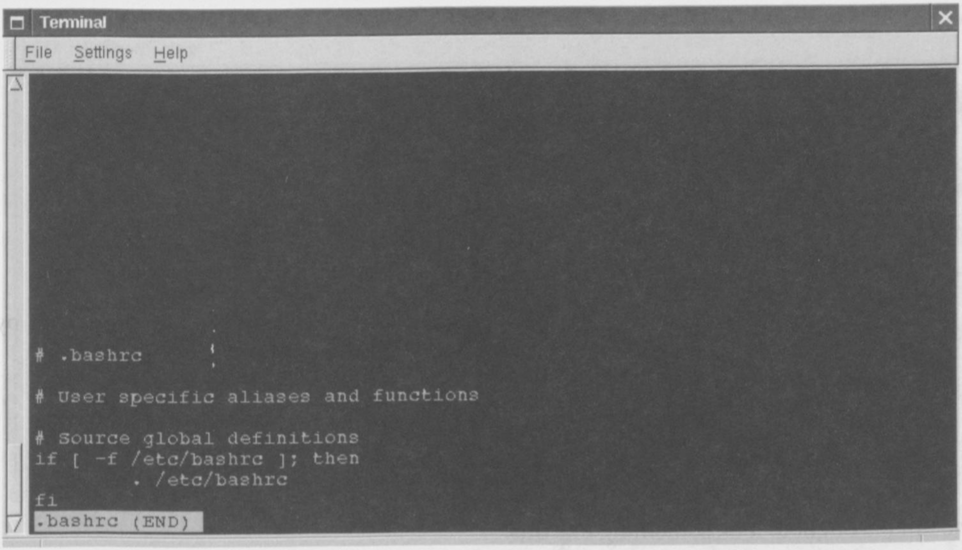
Remember that any changes you make to configuration files can cause you a world of grief if you've made a mistake and you don't have a backup copy of that file.

To make a backup copy, make sure you're in your login directory and in an `xterm` window, type:

```
cd ~
```

to get to your login directory. Then copy the `.bashrc` file, keeping it in the same directory, but with a name like `.bashrc2`.

```
cp .bashrc .bashrc2
```



```
# .bashrc

# User specific aliases and functions

# Source global definitions
if [ -f /etc/bashrc ]; then
        . /etc/bashrc
fi
.bashrc (END)
```

Figure 16.7: The .bashrc file

When you type the above command, what you're saying is, "make a copy of the `.bashrc` file and name that copy `.bashrc2`."

Now, you have a backup copy of the unmodified `.bashrc` file in your login directory. If you make a mistake or have trouble, you can replace your `.bashrc` file by typing:

```
cp .bashrc2 .bashrc
```

at the shell prompt.

If you need to type this command, you'll be saying, "make a copy of the file `.bashrc2` and name that copy `.bashrc`." The copy command here will overwrite the original `.bashrc` file – and you'll still keep a copy of the original (and untouched) `.bashrc` file with the name of `.bashrc2`.

Now that we're prepared, we'll open .bashrc with Pico, a simplified *text editor*. (A text editor is a utility program that can create or modify files.) From an `xterm` window, type:

```
pico .bashrc
```

You should see something like this:

```
# .bashrc

# User specific aliases and functions

# Source global definitions
if [ -f /etc/bashrc ]; then
        . /etc/bashrc

fi
```

It's a pretty short file. Those hash marks `(#)` are *comments*. Any text after them is ignored by the shell, but they are put there to help guide anyone who's editing or modifying files.

Bring your cursor under the line `#User specific aliases and functions` and type:

```
alias ls="ls -al --color"
```

So the full file ought to look something like this:

```
# .bashrc

# User specific aliases and functions

alias ls="ls -al --color"

# Source global definitions
if [ -f /etc/bashrc ]; then
        . /etc/bashrc

fi
```

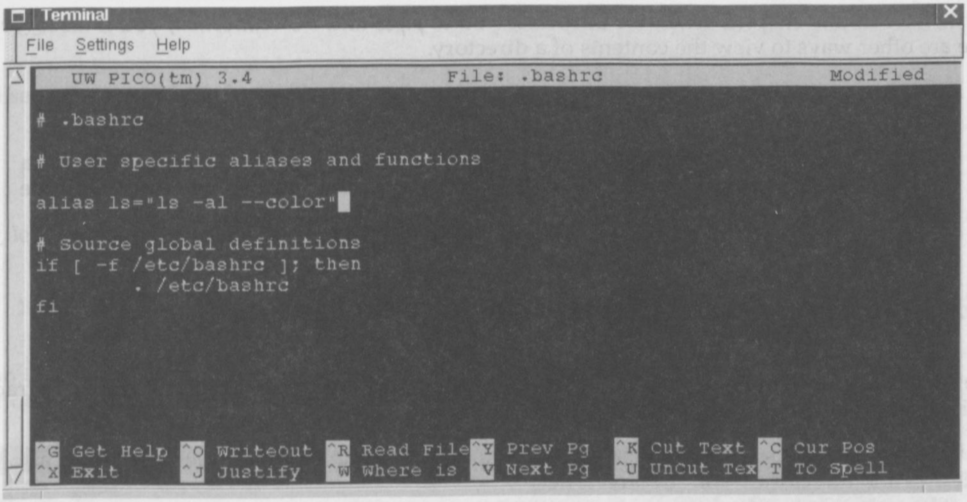
See Figure 16.8 for an example in Pico.

Double-check for any typos then, when you're satisfied with the changes, exit by pressing the Ctrl and X keys. You'll see, at the bottom of your editor screen, a message reading:

```
Save modified buffer (ANSWERING "No" WILL DESTROY CHANGES)?
```

Press Y for "yes." Now, another message will appear at the bottom:

```
File Name to write: .bashrc
```


Terminal
File Settings Help
UW PICO(tm) 3.4 File: .bashrc Modified
^G Get Help ^O WriteOut ^R Read File ^Y Prev Pg ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where is ^V Next Pg ^U UnCut Text ^T To Spell

```
# .bashrc

# User specific aliases and functions

alias ls="ls -al --color"

# Source global definitions
if [ -f /etc/bashrc ]; then
        . /etc/bashrc
fi
```

Figure 16.8: Adding an alias for the `ls` command to the `.bashrc` file

Simply pressing Enter will save your changes to your `.bashrc` file.

You won't be able to see your changes take effect until you close your xterm window and open a new xterm. Once you do that, you'll see your modifications take effect.

Here's a short list of some popular options with `ls`. Remember, you can view the full list by reading the `ls` man page (`man ls`).

- **-a** – all. Lists all the files in the directory, including the hidden files (`.filename`). The .. and . at the top of your list refer to the parent directory and the current directory, respectively.
- **-l** – long. Lists details about contents, including permissions (modes), owner, group, size, creation date, whether the file is linked to somewhere else on the system and where its link points.
- **-F** – file type. Adds a symbol to the end of each listing. These symbols include `/` to indicate a directory; `@` to indicate a symbolic link to another file; `*` to indicate an executable file.
- **-r** – reverse. Lists the contents of the directory from back to front.
- **-R** – recursive. This recursive option lists the contents of all directories (below the current directory) recursively.
- **-S** – size. Sorts files by their size.

A little later in this chapter, when we introduce you to *pipes* and *I/O redirection*, you'll discover that there are other ways to view the contents of a directory.

> **Summary:** To see the contents of a directory, type `ls` at a shell prompt; typing `ls -a` will display all the contents of a directory; typing `ls -a --color` will display all the contents categorized by color.

## 16.4 A Larger Picture of the Filesystem

Every operating system has a method of storing its files and directories so that it can keep track of additions, modifications and other changes.

In Linux, every file is stored on the system with a unique name, in directories which can also hold other files and directories – or, subdirectories.

You might think of the system as a tree-like structure, in which directories "branch off." Those directories may contain – or be the "parent" of – other directories which may hold files or directories of their own.

There wouldn't be a tree without a root, and the same is true for the Linux filesystem. No matter how far away the branches, everything is connected to the root, which is represented as a single forward slash (/).

It might seem confusing to have several references to "root" - the root account, the root account's login directory and the root directory (`/`), but think of it this way: The root login, who is the system administrator, is just as important to keeping things together in the system as the system's root (`/`).

> **Tip:** Even though there are other Linux distributions, your Red Hat Linux system is likely to be compatible with them. The reason is because of the Filesystem Hierarchy Standard (also known as FHS). These guidelines help to standardize the way system programs and files are stored on all Linux systems. You can read more about the FHS at its website:
>
> `http://www.pathname.com/fhs/`

As long as we're logged into our user account – which will help prevent disastrous mistakes – let's take a look around.

The first stop on this tour ought to be the root directory, which will give us a larger picture of where things are.

At the shell prompt, then, let's type:

```
cd /
```

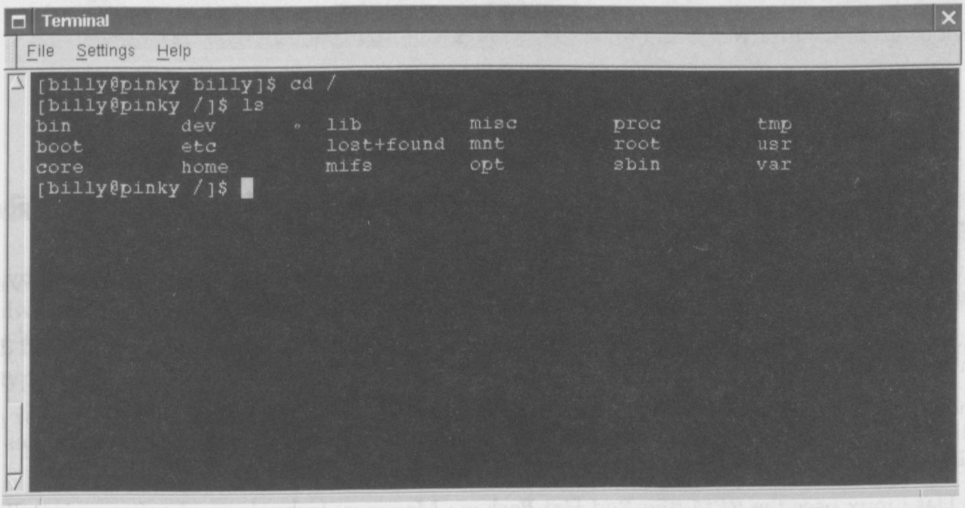
We'll see a prompt which looks like:

```
[billy@localhost /]$
```

Now, let's see which directories "branch off" root by typing:

```
ls
```

Doesn't look like much, does it? Well, it's a little like viewing the tip of an iceberg. These are the parent directories of other directories, in which there may be other directories… and so on.



```
[billy@pinky billy]$ cd /
[billy@pinky /]$ ls
bin         dev         lib         misc        proc        tmp
boot        etc         lost+found  mnt         root        usr
core        home        mifs        opt         sbin        var
[billy@pinky /]$ 
```

Figure 16.9: Getting of view of the directories from root

Here are just a few of the directories we're likely to find:

```
etc     lib     sbin

usr     var
```

There are more, but let's take a look in the `/etc` directory.

```
[billy@localhost /]$ cd etc
[billy@localhost /etc]$ ls
```

Here, among other type of files and directories, we'll find *configuration files*, which are files that help make programs work for our system, store our program and system settings and more.

Among the directories in here, you'll see `/etc/X11`, which also contains directories and configuration files for the X Window System.

In the directory `/etc/skel`, you'll find *skeleton* user files, which are used to populate newly created user accounts with standard, commonly used files.

That sounds a little gothic, perhaps, but here's what it means. When we were logged in as root, one of our first tasks was to create an account for ourselves.

When our user account was created, files were taken from `/etc/skel` and placed into the new account. These files helped to "flesh out" the account (skeleton... flesh... get it?).

Let's look around a little in `/usr`. From our current location in `/etc/skel`, we can type:

```
[billy@localhost /skel]$ cd /usr
[billy@localhost /usr]$ ls
```

In `/usr`, we're going to find a number of directories which hold some of our system's most important programs, and files (see Figure 16.10).

In `/usr/man` we'll find the system manual pages; other documentation which isn't covered by man pages will be found in `/usr/doc`.

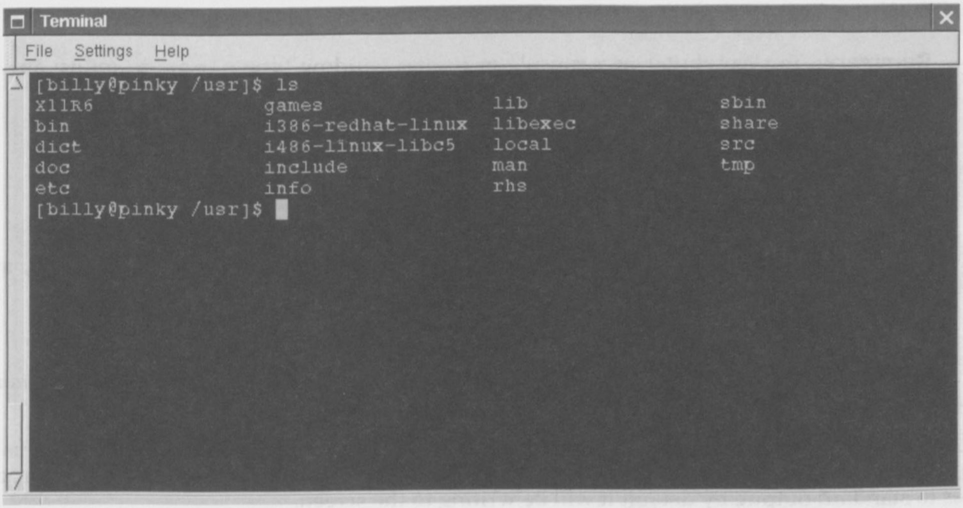
In `/usr/X11R6`, we'll find files related to the X Window System, including configuration and documentation files.

Although we may think of something more literary when we hear the word "libraries," in `/usr/lib` we'll find files which are considered libraries for our system. In this context, libraries are files containing commonly-used snippets of code which can be shared by many programs.

Red Hat Linux uses the RPM (the **R**ed Hat **P**ackage **M**anager) technology of software installation and upgrades. Using RPM, either from the shell prompt or through GnoRPM, is both a safe and convenient way to upgrade or install software.

(For more on using GnoRPM, see its chapter in the Red Hat Linux Installation Guide.)

However, once you become more comfortable with your system, there may be times when you'll want to install software that may not be available in RPM format. To minimize collisions with RPM-managed files, the best place to put such software is in `/usr/local`.



```
[billy@pinky /usr]$ ls
X11R6                 games                 lib                   sbin
bin                   i386-redhat-linux     libexec               share
dict                  i486-linux-libc5      local                 src
doc                   include               man                   tmp
etc                   info                  rhs
[billy@pinky /usr]$ 
```

Figure 16.10: The ls command in /usr

## 16.5 "Washing" the Window

After even one `ls` command in an `xterm` window, things might start feeling a little crowded. We can always exit from the terminal window and open a new one, but here's a quicker way to wipe the slate clean.

Just type:

```
clear
```

at the shell prompt. The `clear` command does just as advertised: it clears the terminal screen.

Sometimes, you may accidentally open a program file or some other non-text file in a terminal window. Once you close the file, you could find that the text you're typing doesn't match with the output on the monitor.

In such cases, you simply have to type:

```
reset
```

to return the window to its default values.

**Summary:** To clear clutter in a console or `xterm` window type `clear`; to return an `xterm` window to its default display properties, type `reset`.

## 16.6 Using `cat`

There's a handy utility which can help you keep short lists, gather those lists together and, at the same time, show you a little of the power behind your Red Hat Linux system.

The utility is called `cat`, short for "concatenate," which means that it strings files together.

But `cat` can also perform a quick demonstration of two important terms: *standard input* and *standard output*.

Standard input and standard output direct input and output (often referred to as *I/O*) to the user. If a program reads from standard input, it will, by default be reading from the keyboard. If a program writes to standard output, by default it will be writing to the screen.

Let's start `cat` to see what this means. At the shell prompt, type:

```
cat
```

The cursor moves to a blank line. Now, in that blank line, let's type:

```
stop at sneaker store
```

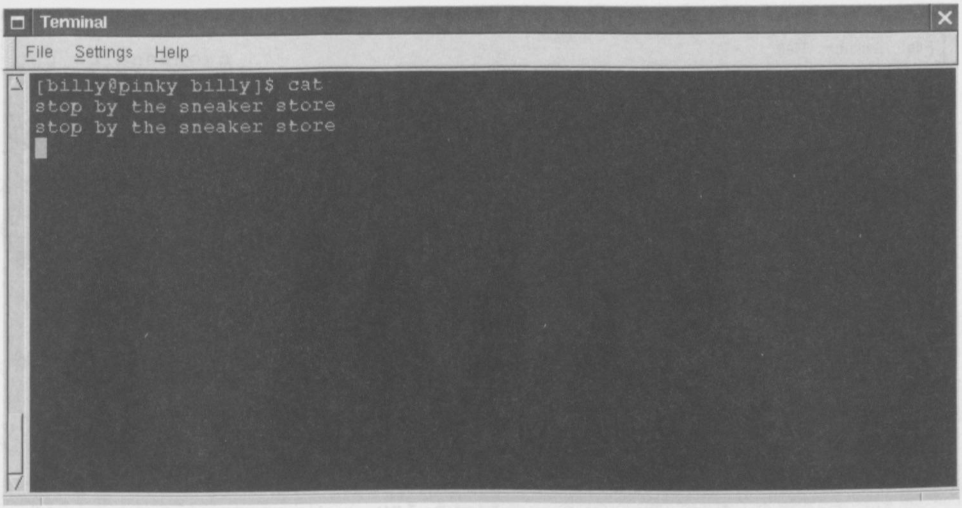
and press the Enter key. Suddenly, your screen looks like:

```
[billy@localhost billy]$ cat
stop by sneaker store
stop by sneaker store
```

To quit `cat` now, just move the cursor to a blank line by pressing Enter then press the Ctrl and D keys at the same time.

So it's not too exciting. But `cat` has just demonstrated the definition of standard input and standard output. Your input was read from the keyboard (standard input), and that input was then directed to your terminal (standard output).

**Summary:** Standard input is often text which is entered from the keyboard. Standard output is the place where information is sent, such as your terminal (as shown in Figure 16.11).



```
[billy@pinky billy]$ cat
stop by the sneaker store
stop by the sneaker store
```

Figure 16.11: `cat` demonstrates standard input and standard output

## 16.7 Using Redirection

Now that we have a handle on what standard input and standard output are, it's time to expand a little.

Redirection means causing the shell to change what it considers standard input or where the standard output is going.

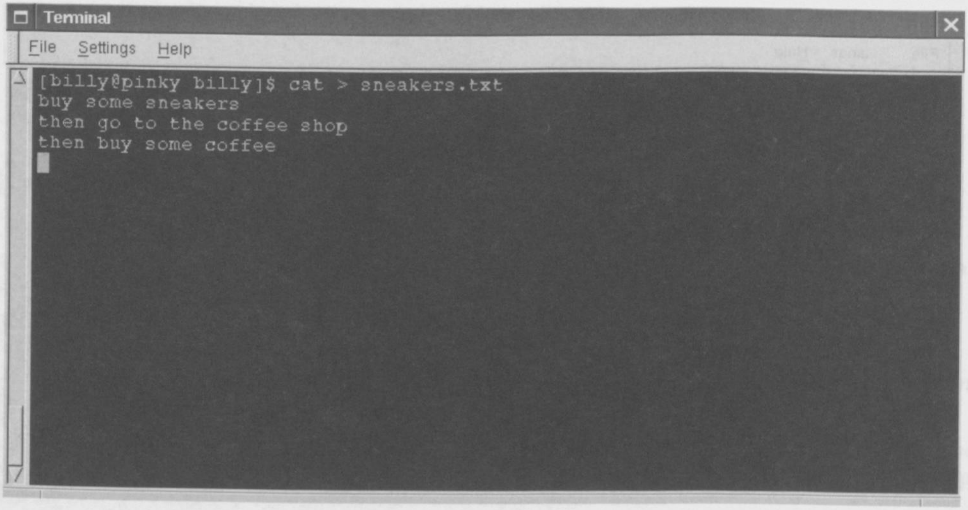
We used `cat` before to demonstrate the idea behind standard input and standard output. Now, let's use `cat` to see how standard output can be redirected.

To redirect standard output, we'll use the > symbol. Placing > after the `cat` command (or after any utility or application that writes to standard output) will direct its output to the filename following the symbol.

Let's try it. In an xterm window type:

```
[billy@localhost billy]$ cat > sneakers.txt
buy some sneakers
then go to the coffee shop
then buy some coffee
```

Now press Enter to go to an empty line, and use the Ctrl and D keys to quit `cat`.



```
[billy@pinky billy]$ cat > sneakers.txt
buy some sneakers
then go to the coffee shop
then buy some coffee
```

Figure 16.12: Redirecting the output to a file

Notice the difference (see Figure 16.12)? For one thing, there are no double entries. That's because the standard output from cat was redirected. That redirection was to a brand new file you made called `sneakers.txt`.

You can find the file in your login directory (may we suggest using `ls` if you want to see it listed?).

You can even use `cat` to read the file, by typing:

```
cat sneakers.txt
```

at the prompt.

> **Tip:** Be careful when you redirect the output to a file, because you can easily overwrite an existing file! Make sure the name of the file you're creating doesn't match the name of a pre-existing file, unless you want to replace it.

Let's use output redirection for another file and call it `home.txt`.

```
[billy@localhost billy]$ cat > home.txt
bring the coffee home
```

```
take off shoes
put on sneakers
make some coffee
relax!
```

Now, on an empty line, use the Ctrl and D keys again to quit `cat`.

We can check the file again by typing:

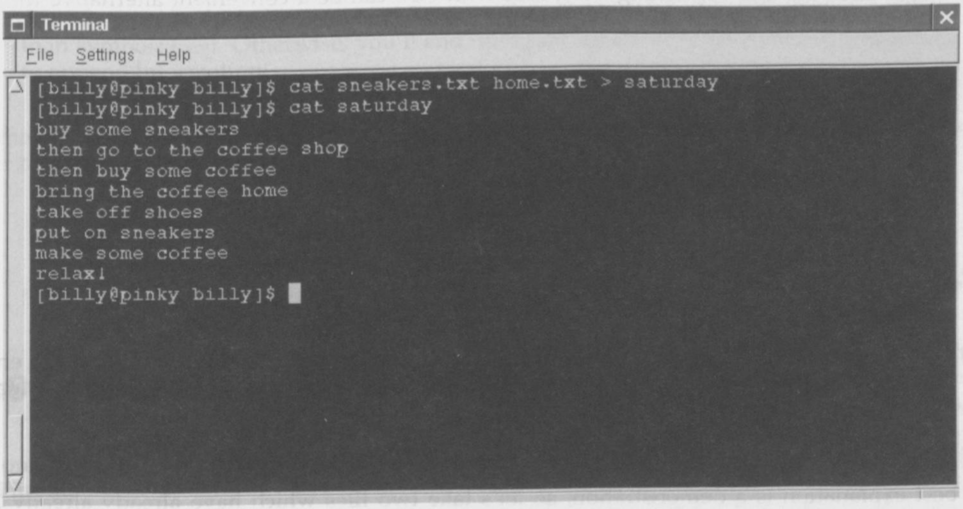
```
cat home.txt
```

at the prompt.

Let's use `cat` again to join `home.txt` with `sneakers.txt` and redirect the output of both files to a brand new file we'll call `saturday` (you'll find an example in Figure 16.13).

```
[billy@localhost billy]$ cat sneakers.txt home.txt > saturday
```

That's it.



```
[billy@pinky billy]$ cat sneakers.txt home.txt > saturday
[billy@pinky billy]$ cat saturday
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
[billy@pinky billy]$
```

Figure 16.13: Joining files and redirecting the output

Now it's time to check our handiwork. Type:

```
[billy@localhost billy]$ cat saturday
```

and you should see something like this:

```
[billy @localhost billy]$ cat saturday
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
[billy @localhost billy]$
```

You can see that `cat` has added `home.txt` where `sneakers.txt` left off.

**Tip:** Creating and combining short files with `cat` can be a convenient alternative to using a text editor like `pico`.

**Summary:** By using the output redirection symbol (>) you can send the output to a file instead of the terminal. The `cat` utility can be used along with output redirection to join files together into a single, unified file with one filename.

## 16.8 Appending Standard Output

There's a neat twist to output redirection which allows you to add new information to the end of an existing file. Similar to when you used the > symbol, you tell your shell to send the information somewhere other than standard output.

However, when you use >>, you're *adding* information, rather than replacing it.

The best explanation is a demonstration, so let's take two files which have already already been created – `sneakers.txt` and `home.txt` – and join them by using the append output symbol. We want to add the information in `home.txt` to the information already in `sneakers.txt`, so we type:

```
cat home.txt >> sneakers.txt
```

Now let's check the file by typing:

```
cat sneakers.txt
```

And there it is – with the contents of `home.txt` at the end.

What we were saying when we typed that command was, "append the output from the file `home.txt` to the file `sneakers.txt`."

By appending the output, we've saved ourselves a step or two (and a bit of disk clutter) by using existing files, rather than creating a new file.

Compare the results of the files `sneakers.txt` and `saturday` now, and you'll see that they're identical. To make your comparison, just type:

```
cat sneakers.txt; cat saturday
```

The contents of both files will be displayed - first `sneakers.txt`, then `saturday` (as shown in Figure 16.14).

> **Tip:** Remember that when you append output, you've got to include the double greater-than symbols (>>). Otherwise, you'll end up replacing the very file to which you want to append information!

(By the way, if you're curious about the use of the semi-colon in that last command, read on. We'll cover that later in this chapter.)

> **Summary:** To append output, use two greater-than symbols (>>). For example: `cat addthisfile >> tothisfile`.

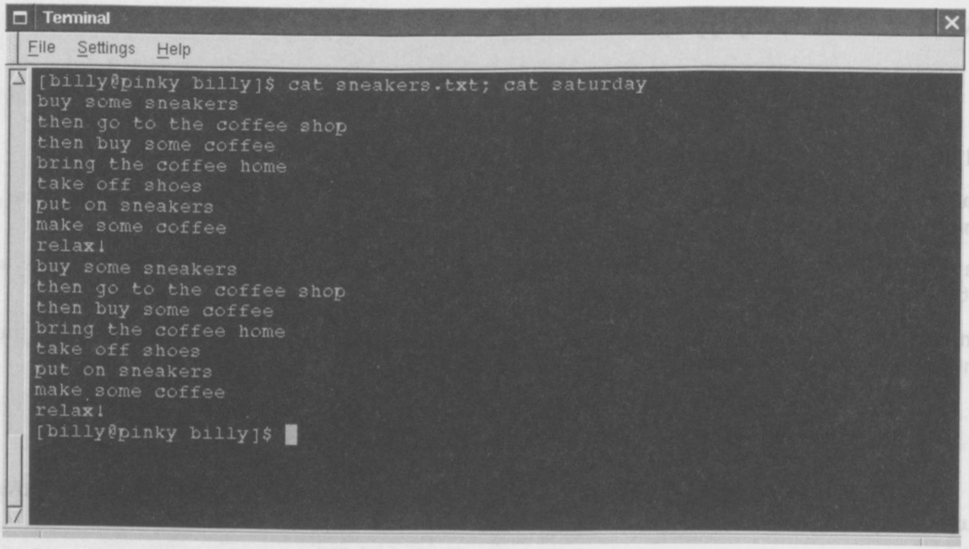
## 16.9 Redirecting Standard Input

Not only can you redirect standard output, you can perform the same type of redirection with standard input.

Here's how it works:

When you use the redirect standard input symbol <, you're telling the shell that you want a file to be read as input for a command.

We can use a file we've already created to demonstrate this idea. Just type:



```
[billy@pinky billy]$ cat sneakers.txt; cat saturday
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
[billy@pinky billy]$
```

Figure 16.14: Stringing commands and comparing files

```
cat < sneakers.txt
```

Because we used the less-than symbol (<) to separate the `cat` command from the file, the output of `sneakers.txt` was read by `cat`.

## 16.10 Pipes

No, we're not going to start talking about plumbing here. In Linux, "pipes" connect the standard output of one command to the standard input of another command.

Let's take a step back, to the `ls` command. There are plenty of options available with `ls`, but what if the contents of a directory stream by too quickly for you to view them?

Let's view the contents of the `/etc` directory.

```
ls -al /etc
```

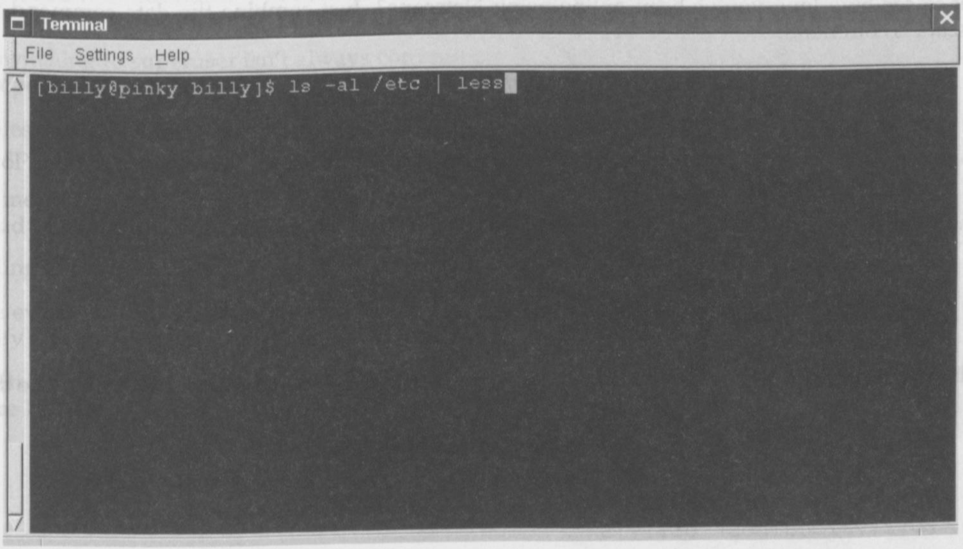
How do we take a closer look at the output before it races off the screen?

One answer is to pipe the output to a utility called `less`. Known as a pager, `less`, (like `more`) allows us to view information one page (or screen) at a time.

We use the vertical bar (`|`) to pipe the commands (as shown in Figure 16.15).

```
ls -al /etc | less
```

Now we can view the contents one screen at a time. To move forward a screen, just press Space; to move back a screen, press B; to quit, just press Q.



```
[billy@pinky billy]$ ls -al /etc | less
```

Figure 16.15: Piping the output of `ls` to the `less` pager

Actually, we've already been using pipes, before we even discussed what they were.

In previous references to man pages, we used the following to print out the man page entry:

```
man ls | col -b| lpr
```

Here, we're sending the output of `man ls` to a filter called `col` with an option of `-b` to help format the text for the printer, then we sent the output of that to the printer using the `lpr` command.

**Summary:** Piping allows you to send the output of one command as the input of another command. For example: `ls -al /etc | more` pipes the output of the `ls` command to the `more` utility for easy viewing.

## 16.11 Stringing Commands Together

Linux allows you to enter multiple commands at one time. The only requirement is that you separate the commands with a semicolon (you can see an example in Figure 16.14).

Want to see how long you've been online using Netscape? Just combine the date command with Netscape's command.

```
date; netscape; date
```

Remember that commands are case sensitive, so the command to start Netscape must be in lowercase to start the browser.

In the `xterm` window, we'll see something like this:

```
[billy@localhost billy]$ date; netscape; date
Saturday Mar 27 21:26:27 EST 1999
```

We'll see the second date entry when we close out of Netscape. Then, our screen will look like this:

```
[billy@localhost billy]$ date; netscape; date
Fri Mar 26 13:26:27 EST 1999
Fri Mar 26 14:28:32 EST 1999
[billy@localhost billy]$
```

And the prompt will return. The discrepancy between the two results from the `date` command shows that we were using Netscape for just over an hour.

## 16.12 Ownership and Permissions

Earlier in this chapter, when we tried to `cd` to root's login directory, we received the following friendly message:

```
[billy@localhost billy]$ cd /root
bash: /root: Permission denied
[billy@localhost billy]$
```

That was one demonstration of Linux's security features. Linux, like UNIX, is a multi-user system, and file *permissions* are one way the system uses to protect against any type of tampering – malicious or accidental.

One way to gain entry when we see we're denied permission is to `su` to root, as we learned earlier. That's because whoever knows the root password has complete access.

```
[billy@localhost billy]$ su root
Password: (your root password)
[root@localhost billy]# cd /root
[root@localhost /root]#
```

But switching to superuser isn't always convenient – or smart, since it's so easy to mistakenly mess up important configuration files.

All files and directories are "owned" by the person who created them. We created the file `sneakers.txt` in our login directory, so `sneakers.txt` "belongs" to us.

That means, we can specify who's allowed to read the file, write to the file or, if it were an application instead of a text file, who can execute the file.

Reading, writing and executing are the three main settings in permissions.

Since every user on the system is placed into a *group* when that user is created, then we can also specify whether certain groups can read, write to, or execute our file.

Let's take a closer look at `sneakers.txt` with the `ls` command using the `-l` (long) option (see Figure 16.16).

```
[billy@localhost billy]$ ls -l sneakers.txt
-rw-rw-r--   1 billy billy    150 Mar 19 08:08 sneakers.txt
```

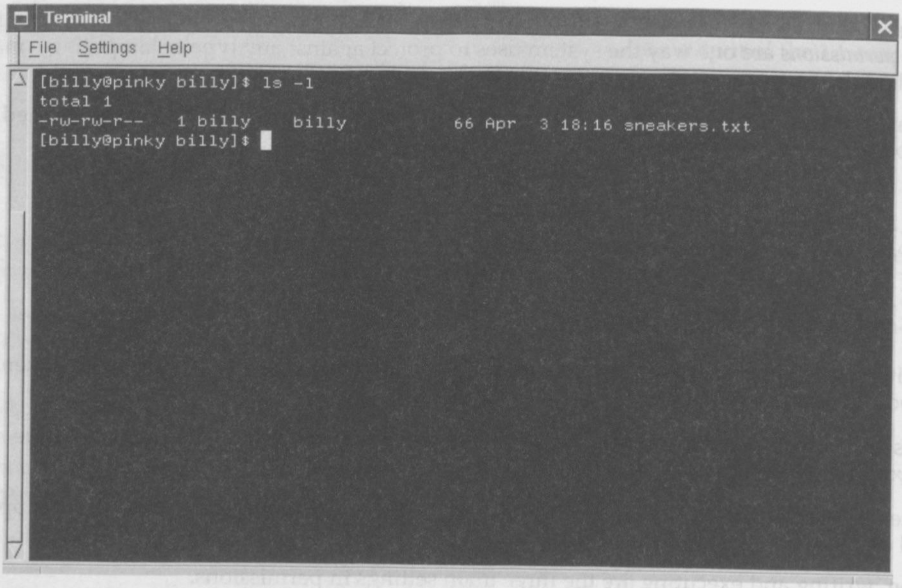
There's quite a bit of detail here. We can see who can read (`r`) and write to (`w`) the file, as well as who created the file (`billy`) and to which group the owner belongs (`billy`).

**Tip:** Remember that, by default, your group was the login name you chose.

Other information to the right of the group includes the file name, date and time of its creation as well as size.

How do all those dashes and letters fit together? It's not as hard to read as it might seem. Let's take a look:

```
-rw-rw-r--
```



```
[billy@pinky billy]$ ls -l
total 1
-rw-rw-r--    1 billy    billy          66 Apr  3 18:16 sneakers.txt
[billy@pinky billy]$ 
```

Figure 16.16: Permissions for sneakers.txt

There are 10 slots in this column. The first slot represents the type of file. The remaining nine slots are actually three sets of permissions for three different categories of users.

Those three sets are: the owner of the file, the group in which the file belongs and "others," meaning users and groups other than owner of the file (`billy`) and those in billy's group (which is also `billy`).

Let's stretch out these file settings a bit:

```
 -    (-rw)   (-rw)  (r--)    1 billy billy
 |      |       |      |
type  owner   group  others
```

The first item, which specifies the file type, can show one of the following:

- `d` – a directory
- `-` – a regular file (rather than directory or link)
- `l` – a symbolic link to another program or file elsewhere on the system

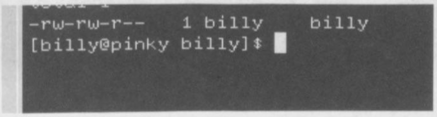
Beyond the first item, in the following three sets, we'll see one of the following:

- `r` – file can be read
- `w` – file can be written to
- `x` – file can be executed (if it's a program)

When we see a dash in owner, group or others, it means that particular permission hasn't been granted.

Let's look again at first column of `sneakers.txt` and identify its permissions. (See Figure 16.17)

```
[billy@localhost billy]$ ls -l sneakers.txt
-rw-rw-r--    1 billy billy      150 Mar 19 08:08 sneakers.txt
[billy@localhost billy]$
```



```
-rw-rw-r--    1 billy    billy
[billy@pinky billy]$
```

Figure 16.17: A closer view of permissions

The file's owner, `billy`, has permission to read and write to the file; it's not a program, so billy doesn't have permission to execute it. The group, `billy`, has permission to read and write to `sneakers.txt`, as well. Similar to the program notation for owner `billy`, there's no execute permission for group `billy`.

In the last set, we can see that those who aren't either the user `billy` or in the group called `billy` can read the file, but can't write to it or execute it.

We can use the `chmod` command to change a file's permissions.

Let's work a bit more on `sneakers.txt` to change the permissions with the `chmod` command.

The original file looks like this, with its initial permissions settings:

```
-rw-rw-r--    1 billy billy      150 Mar 19 08:08 sneakers.txt
```

As long as we're the owner of the file – or we're logged into the root account – we can change permissions in any combination of settings for the owner, group and others.

Right now, the owner (that's us) and our group (which is `billy`) can read and write to the file.

Anyone outside of our group – for example, anyone in the `adm` group - can only read the file (`r--`).

**Tip:** Remember that file permissions are a security feature. Whenever you allow everyone to read, write to and execute files, you may be increasing your risk of tampering. As a rule, then, you should shy away from allowing everyone to read and write to a file.

In this case, however, let's say that we want to allow everyone to write to the file, so they can read it, write notes in it and save it. That means we'll have to change the change the "others" section of the file permissions.

Since we're the owner of the file, we don't have to `su` to root to do it. Let's take a look at the file first. At the shell prompt, type:

```
ls -l sneakers.txt
```

which gives us this file information:

```
-rw-rw-r--    1 billy billy     150 Mar 19 08:08 sneakers.txt
```

Now, type the following:

```
chmod o+w sneakers.txt
```

To check our results, we can list the file's details again. Now, the file looks like this:

```
-rw-rw-rw-    1 billy billy     150 Mar 19 08:08 sneakers.txt
```

There's our result: Now, everyone can read and write to the file (Figure 16.18).

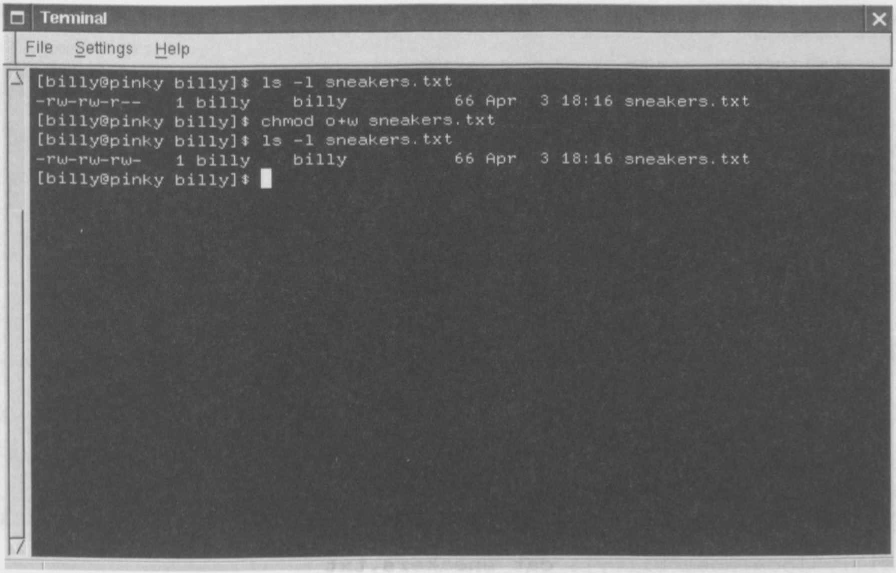
When we typed `o+w`, we were saying, "for others, add write permission to the file `sneakers.txt`."

If we want to remove all access permission from `sneakers.txt` (even though it's only a sketchy shopping list), we could use the `chmod` command to take away both the read and write permissions like so:

```
chmod go-rw sneakers.txt
```

and the result will look like this:

```
-rw-------    1 billy billy    150 Mar 19 08:08 sneakers.txt
```



```
[billy@pinky billy]$ ls -l sneakers.txt
-rw-rw-r--    1 billy    billy          66 Apr  3 18:16 sneakers.txt
[billy@pinky billy]$ chmod o+w sneakers.txt
[billy@pinky billy]$ ls -l sneakers.txt
-rw-rw-rw-    1 billy    billy          66 Apr  3 18:16 sneakers.txt
[billy@pinky billy]$ 
```

Figure 16.18: Changing permissions for `sneakers.txt`

By typing `go-rw`, then, we were saying "for the group and others, remove read and write permission to the file `sneakers.txt`."

You might think of these settings as a kind of shorthand when you want to change permissions with `chmod`, because all you really have to do is remember a few symbols and letters with the `chmod` command.

Here a list of what the shorthand represents:

**Identities**

- `u` – the user who owns the file (that is, the owner)
- `g` – the group to which the user belongs
- `o` – others (not the owner or the owner's group)
- `a` – everyone (`u`, `g`, and `o`)

**Permissions**

- `r` – read access

- `w` – write access
- `x` – execute access

**Actions**

- `+` – adds the permission
- `-` – removes the permission
- `=` – makes it the only permission

Want to test it out? Let's remove all permission from `sneakers.txt` – for everyone.

```
chmod a-rw sneakers.txt
```

Now, let's see if we can read the file:

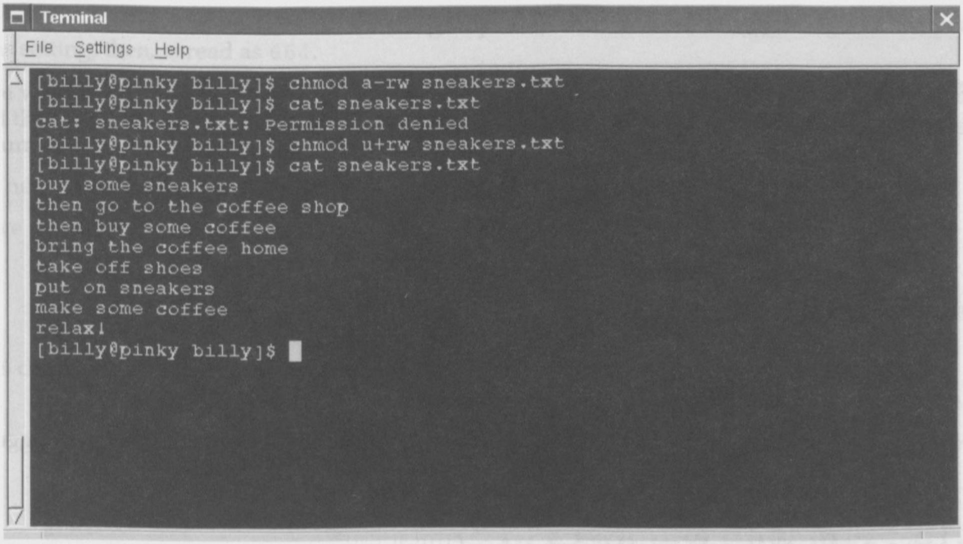
```
[billy@localhost billy]$ cat sneakers.txt
cat: sneakers.txt: Permission denied
[billy@localhost billy]$
```

Guess it worked; even we can't get into the file. But since the file belongs to us, we can always change permission to allow us read and write access. (See Figure 16.19)

```
[billy@localhost billy]$ chmod u+rw sneakers.txt
[billy@localhost billy]$ cat sneakers.txt
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
[billy@localhost billy]$
```

Here are some common examples of settings that can be used with `chmod`:

- `g+w` – adds write access for the group
- `o-rwx` – removes all permissions for others



```
[billy@pinky billy]$ chmod a-rw sneakers.txt
[billy@pinky billy]$ cat sneakers.txt
cat: sneakers.txt: Permission denied
[billy@pinky billy]$ chmod u+rw sneakers.txt
[billy@pinky billy]$ cat sneakers.txt
buy some sneakers
then go to the coffee shop
then buy some coffee
bring the coffee home
take off shoes
put on sneakers
make some coffee
relax!
[billy@pinky billy]$ 
```

Figure 16.19: Removing, then restoring permissions

- `u+x` – allows the file owner to execute the file
- `a+rw` – allows everyone to read and write to the file
- `ug+r` – allows the owner and group to read the file
- `g=rx` – lets the group only read and execute (not write)

By adding the `-R` option, we can change permissions for entire directory trees.

There's a slight twist, however, because we can't really "execute" a directory as we would an application. Instead, when we add or remove execute permission for a directory, we're really allowing (or denying) permission to search through that directory.

To allow everyone read and write access to the `tigger` directory in our login directory, we just type:

```
chmod -R a+rw tigger
```

But... If we don't allow others to have execute permission to tigger, it doesn't matter who has read or write access, because no one will be able to get into the directory – unless they know the exact filename they want.

For example, let's type:

```
chmod a-x tigger
```

to remove execute access to all.

Here's what happens now when we try to `cd` to into `tigger`:

```
[billy@localhost billy]$ cd tigger
bash: tigger: Permission denied
[billy@localhost billy]$
```

Let's restore ours and our group's access.

```
chmod ug+x tigger
```

Now, if we check our work with `ls -dl` we'll see that only others will be denied access to tigger.

## 16.13 Fun with Numbers in `chmod`

Remember when we made a reference to the "shorthand" method of chmod? Here's another way to change permissions; it may seem a little complex at first - especially if math isn't your strong suit.

Let's go back to the original permissions for `sneakers.txt`.

```
-rw-rw-r--    1 billy billy     150 Mar 19 08:08 sneakers.txt
```

Each permission setting can be represented by a numerical value:

- r = 4
- w = 2
- x = 1
- - = 0

When these values are added together, the total is used to set specific permissions - more specific than changing permissions with the alphabetical "shorthand."

In `sneakers.txt`, then, here are the numerical permissions settings:

```
 -   (-rw)    (-rw)   (r--)
       |        |       |
     0+4+2    0+4+2   4+0+0
```

The total for the user is six, the total for the group is six and the total for others is four. The permissions setting, then, is read as `664`.

If we want to change `sneakers.txt` so those in our group didn't have write access, but could still read the file (as shown in Figure 16.20), we'll have to remove the access by subtracting 2 from that set of numbers.

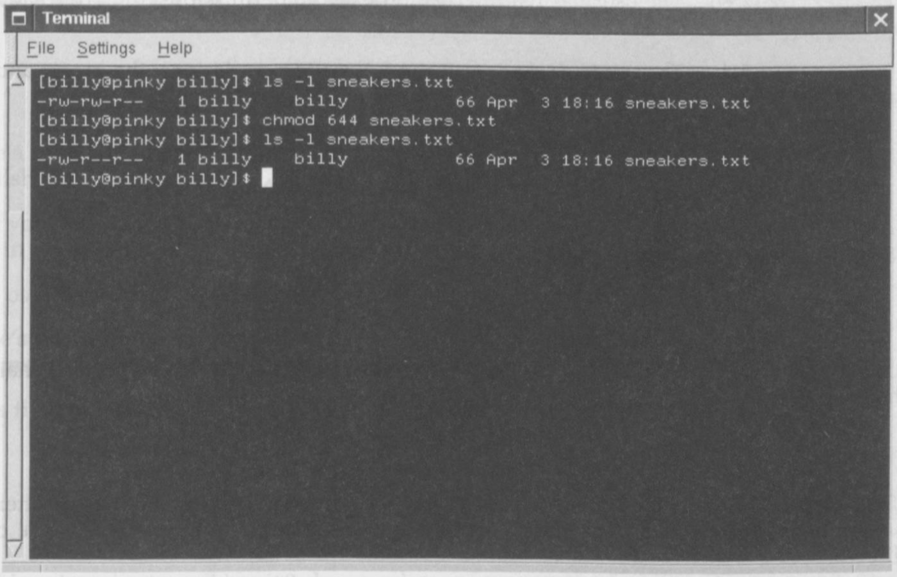
The numerical values, then, would become six, four and four – or 644.

So we can type:

```
chmod 644 sneakers.txt
```

Let's check our changes by listing the file (`ls -l sneakers.txt`):

```
-rw-r--r--    1 billy billy     150 Mar 19 08:08 sneakers.txt
```



```
[billy@pinky billy]$ ls -l sneakers.txt
-rw-rw-r--    1 billy    billy          66 Apr  3 18:16 sneakers.txt
[billy@pinky billy]$ chmod 644 sneakers.txt
[billy@pinky billy]$ ls -l sneakers.txt
-rw-r--r--    1 billy    billy          66 Apr  3 18:16 sneakers.txt
[billy@pinky billy]$
```

Figure 16.20: Removing group write permissions

And there it is; now, neither the group nor others have write permission to `sneakers.txt`. To return the group's write access for the file, we can just add the value of w (2) to the second set of permissions.

```
chmod 664 sneakers.txt
```

**Tip:** Beware 666 and 777. Biblical implications aside, either of these settings will allow everyone to read and write to a file or directory. Such settings as these could allow tampering with sensitive files, so in general, it's not a good idea to allow these settings.

Here's a list of some common settings, numerical values and their meanings:

- `-rw-------` (600) – Only the user has read and write permissions.
- `-rw-r--r--` (644) – Only user has read and write permissions; the group and others can read only.
- `-rwx------` (700) – Only the user has read, write and execute permissions.
- `-rwxr-xr-x` (755) – The user has read, write and execute permissions; the group and others can only read and execute.
- `-rwx--x--x` (711) – The user has read, write and execute permissions; the group and others can only execute.
- `-rw-rw-rw-` (666) – Everyone can read and write to the file. Bad idea.
- `-rwxrwxrwx` (777) – Everyone can read, write and execute. Another bad idea.

Here are a couple common settings for directories:

- `drwx------` (700) – Only the user can read, write in this directory.
- `drwxr-xr-x` (755) – Everyone can read the directory, but its contents can only be changed by the user.

**Summary:** You can change permissions with the `chmod` command by using letters or numbers. Type `chmod (permissions) file` to change permissions of a file or directory.

You've already come quite a distance in learning about your Red Hat Linux system – from navigation to setting and changing permissions.

Now, it's time to learn a little more about managing what you have on your system. The following chapter wil help you to understand a little more about file types and how to work with a variety of commands.

# 17

# Managing Files and Directories

If you're a Linux newbie – and there are many – you may feel a little disoriented when you want to accomplish your first tasks.

Relax. If you've had any experience with other operating systems, learning Linux is a bit like learning to drive in a new country: The ideas are the same, but some of the particulars are a bit different.

We'll go over several of those "rules of the road" in this chapter.

But there's one component of your new operating system you just can't do without: the *shell*. We've made numerous references to the shell – as in "shell prompt," or "bash."

Now, it's time to learn a little more about this indispensable tool. But first, a little history. . .

## 17.1 Shell Collecting

In the olden days (we're talking '60s here), when AT&T's Dennis Ritchie and Ken Thompson were designing UNIX, they wanted to create a way that humans could interact with their new system.

Operating systems at the time did come with "command interpreters," which could take commands from the user and interpret them for the computer to understand.

But Ritchie and Thompson wanted something more, something which could offer better features than the command interpreters of the day.

Enter the Bourne shell (known simply as `sh`), created by S.R. Bourne, which fulfilled the goals UNIX's creators.

Since the creation of the Bourne shell, other shells have been developed, such as the C shell (`cs` and the Korn shell (`ksh`).

When the Free Software Foundation sought a royalty-free shell, developers began to work on th language behind the Bourne shell as well as some of the popular features from other shells availab at the time.

The result was the Bourne Again Shell – or `bash`.

By now, of course, you've probably seen the word `bash` when you've mistyped commands at th shell prompt (as in `bash:  oops:  command not found`).

In Chapter 16 on page 217, when we covered redirection and piping, we were also demonstrating the power of `bash`.

> **Tip:** You can learn more about `bash` by reading the `bash` man page. At the shell prompt, type `man bash` (or you can save the file as a text file by typing `man bash | col -b > bash.txt`, which you can then open to read with an editor like `pico` or a pager like `less`. You can also print the file with `man bash | col -b | lpr`, but be warned: it's a large file. If you want more information, O'Reilly & Associates publishes *Learning the bash Shell*, by Cameron Newham and Bill Rosenblatt.

Although your system came with several different shells, `bash` is the default shell for Red Hat Linux.

You might think of `bash` as a fleet-footed office assistant who has made a habit of keeping notes on ways to fulfill commands quickly. This assistant also keeps pointers on how you like to customize the way you work.

These "pointers" `bash` keeps are referred to as *environment variables*.

The shell uses an "environment" in the same way we use an environment, like a kitchen. We work in our kitchen, arrange pots, pans, and spices. We know where the dishes are, how things operate.

The same can be said for `bash` and its environment. There's a basic arrangement to `bash` as there would be to just about any kitchen. For example, we'd expect to see pots in a kitchen in the same way that we would expect to see certain commands in `bash`.

That's the idea behind environment variables.

As long as your assistant has the right pointers, he'll fulfill your commands quickly.

Let's take a look at our environment variables. At the shell prompt, type:

```
env
```

Quite a few "shortcuts" `bash` uses, aren't there?

Each one of these helps `bash` customize the environment for you.

Among the most important environment variables is the `PATH` environment variable – which defines what is known as the *default path.*

The `PATH` environment variable for our account `billy` might look something like this:

```
PATH=/usr/local/bin:/usr/X11R6/bin:/usr/bin:/bin:/usr/X11R6/bin:/home/billy/bin
```

It looks crowded, but the `PATH` statement is a great signpost, which points to where programs can be found.

> **Tip:** Remember the reference in the previous chapter to the FHS (Filesystem Hierarchy Standard)? The `PATH` statement is set according to that standard, and programs are installed in directories in accordance with the FHS as well. The end result is that the `PATH` statement will enable `bash` to automatically find nearly any program, assuming it has been installed in accordance with the FHS.

## 17.2 Locating Files and Directories

There will be times when we know a file or directory exists but we won't know where to find it. Searching for a file or directory can be made much easier with the `locate` command.

With `locate`, we'll see every related file or directory which matches our search criterion. Let's say we want to search for all files related to the `finger` command.

```
locate finger
```

The `locate` command uses a database to check for files and directories which match the string `finger`.

> **Tip:** To learn more about `locate`, read the `locate` man page by typing `man locate` at a shell prompt.

It's a handy command which works very quickly – as long as the database is up to date. That database is automatically updated on a nightly basis, from `cron`. What's `cron`? It's a small program that runs in the background, performing various tasks – such as updating the `locate` database – at regularly scheduled intervals.

**Tip:** `cron` is a *daemon*. Daemons handle tasks in the background. To read the `cron` man page, type `man cron` at the shell prompt.

So what happens if we:

- Have more than one operating system on our machine, and switch between them – causing us to halt and restart our Red Hat Linux system;
- Shutdown and turn off our machine at the end of the day.

This might mean that `cron` never has a chance to update the `locate` database. No problem. We can just update the database manually. Let's give it a try.

First, su to root.

Now, at the shell prompt, type:

```
/etc/cron.daily/updatedb.cron
```

After a few minutes, the `locate` database will be current.

## 17.3 Command History and Tab Completion

It doesn't take long before the thought of typing the same command over and over becomes unappealing, at best.

Linux users don't feel any differently about that, either. But in Linux, since you can string together commands at the shell prompt, one minor typo in a couple lines of a command could mean that all that typing was in vain.

So there's a solution: It's called *command-line history*. By scrolling with the up and down arrow keys, we can find plenty of our previously typed commands – including the ones with typos.

Let's try it by taking a look again at `sneakers.txt`. The first time, however, at the shell prompt, we'll type:

```
cat sneakrs.txt
```

Oops! Nothing happens, of course, because there is no `sneakrs.txt` file. No problem. We'll just use the up-arrow key to bring back the command, then use the left-arrow key to get to the point where we missed the "e." Insert the letter and press Enter again.

Voila! We now see the contents of `sneakers.txt`.

The `bash` shell can store up to 1,000 commands.

> **Tip:** By typing the `env` command at a shell prompt, we can see the environment variable that controls the size of the command-line history. The line which reads, "HISTSIZE=1000" tells us that `bash` will store 1,000 commands in its history.

The command-line history is actually kept in a file, called `.bash_history` in our login directory. We can read it in a number of ways: by using `pico`, `cat`, `less`, `more`, and others.

Be prepared, though: the file can be pretty long.

Let's read it with `more`:

```
more .bash_history
```

To move forward a screen, press Space; to move back a screen, press B; to quit, press Q.

Another time-saving tool is known as *tab completion*. If you type part of a file or pathname then hit the Tab key, `bash` will present you with either the remaining portion of a the file/path, or a beep. If we get a beep, we can press Tab again to obtain a list of the files/paths that match what we've typed so far.

So even if we do turn off the machine at the end of the day, we probably won't have to work too hard in order to remember the command to update locate's database: The chances are good that the command will be stored in the command-line history or can be completed with tab completion (as long as we remember the start of the pathname for the command).

Both tab completion and command-line history can be useful to help you use a command you've forgotten, as well.

Let's try tab completion to update locate's database. First, `su` to root.

Now, at a shell prompt, type the beginning of the path:

```
/etc/cr
```

Now, press the Tab key and tab completion will complete the path to `/etc/cron` (and you'll hear a beep). Press Tab again, and you'll be presented with a list of possible completions:

```
cron.daily  cron.hourly  cron.monthly  cron.weekly  crontab
```

So add the `.daily` to the command (or simply type the `.d` and press Tab again). Press Tab again, and the result will be:

```
logrotate   tetex.cron    tmpwatch     updatedb.cron
```

And there's our `updatedb.cron` command. We can simply add it to the end of the path we've got so far (or just type `u` and press Tab yet again) and press Enter to run `updatedb.cron`.

## 17.4 Identifying and Working with File Types

If you're new to Linux, it won't take long before you begin seeing files with extensions that may seem foreign. A file's extension is the last part of a file's name, after the final dot (in the file `sneakers.txt`, "`txt`" was that file's extension).

Here's a brief listing of extensions and their meanings:

### 17.4.1 Compressed/Archived Files

- `.Z` – a compressed file
- `.tar` – an archive file (short for *tape archive*)
- `.gz` – a compressed file (gzipped)
- `.tgz` – a tarred and gzipped file

### 17.4.2 File Formats

- `.txt` – a plain ASCII text file
- `.html/.htm` – an HTML file
- `.ps` – a PostScript file; formatted for printing
- `.au` – an audio file
- `.wav` – an audio file
- `.xpm` – an image file
- `.jpg` – a graphical or image file, such as a photo or artwork
- `.gif` – a graphical or image file
- `.png` – a graphical or image file

### 17.4.3 System Files

- `.rpm` – a Red Hat Package Manager file
- `.conf` – a configuration file
- `.a` – an archive file
- `.lock` – a "lock" file; determines whether a program is in use

### 17.4.4 Programming and Scripting Files

- `.h` – a C and C++ program language header file
- `.c` – a C program language source code file
- `.cpp` – a C++ program language source code file
- `.o` – a program object file
- `.pl` – a Perl script
- `.tcl` – a TCL script
- `.so` – a library file

But file extensions are not always used, or used consistently. So what happens when a file doesn't have an extension, or the file doesn't seem to be what the extension says it's supposed to be?

That's when the `file` command can come in handy.

In 16 on page 217, we created a file called `saturday` – without an extension. Using the `file` command, we can tell what the file is by typing:

```
file saturday
```

and we'll see it's a text file. Any file that's designated a text file should be readable using `cat`, `more`, or `less`.

> **Tip:** To learn more about the `file` command, read the `file` man page by typing `man file`.

And speaking of reading files…

There are plenty of ways to read files in Linux. In the previous chapter, for example, we covered the pagers `more` and `less` – they're called pagers because you can "page" through documents one screen at a time. We also learned how we can not only view but manipulate files with the `cat` command.

But there are even more options when it comes time to take a look at README files, man pages or documents you've created.

You have a number of tools to help you read text files, among them, the text editors `pico`, `emacs`, and `vim`, the pagers `more` and `less`, and the viewers `head`, `tail`, `cat`, and `grep`.

Let's take a look at some of the features in these tools.

## The `less` Command

In Chapter 16 on page 217, we were introduced to the pager `less`. Less is the pager that's used to display man pages.

Let's view the man page for `less` to see `less` in action.

```
man less
```

To move forward a screen, press Space; to move back a screen, press B, and to quit, press Q.

There are other powerful features to `less`, as well, including the ability to scroll horizontally and specify the number of lines to scroll.

## The `more` Command

Odd as it may seem, `more` offers less than `less` (actually, `less` was inspired by more).

Let's take a look at the man page for `more`, but this time, we'll open the page using `more` – by piping `man`'s output to `more`.

```
man more | more
```

It may not look too different at first, but there are fewer enhancements to `more` than to `less`. Probably the most striking difference at first is the lack of a way to go backwards in a document – although moving forward by pressing Space and quitting by pressing Q are the same.

## The `head` Command

You can use the `head` command if you just want to look at the beginning of a file. The command is:

```
head <filename>
```

`Head` can be useful, but because it's limited to the first several lines, you won't know how long the file actually is. By default, you can only read the first 10 lines of a file, although we can specify the number to see more by typing:

```
head -20 <filename>
```

Read `head's` man page (`man head`) for more information. You'll probably find that `less` or `more` are more helpful, because you can page through the file if you find that the information you're looking for is further into the file than you originally thought.

### The `tail` Command

The reverse of `head` (obviously), is `tail`. With (`tail`), you can review the last 10 lines of a file.

### The `cat` Command

The command `cat`, short for concatenation, will dump the contents of the entire file on the screen. Using `cat` can be handy if the file is fairly short, such as when we created `sneakers.txt`. But if a file is fairly long, it will easily scroll past you on the screen, since `cat` displays the whole file.

### The `grep` Command

The `grep` command is pretty nifty for finding specific character strings in a file. Let's say we want to find every reference we made to "coffee" in the file `sneakers.txt`, which we created in our login directory. We could type:

```
grep coffee sneakers.txt
```

and we would see every line in which the word "coffee" could be found.

> **Tip:** Unless otherwise specified, `grep` searches are case sensitive. That means that searching for *Coffee* is different than searching for *coffee*. So among `grep`'s options is `-i`, which allows you to make a case-insensitive search through a file. Read the `grep` man page for more about this command.

## I/O Redirection and Pipes

And don't forget about using pipes and output redirection when you want to store and/or print information to read at a later time.

You can, for example, use `grep` to search for particular contents of a file, then have those results either saved as a file or sent to a printer.

To print the information about references to "coffee" in `sneakers.txt`, for example, we just type:

```
grep coffee sneakers.txt | lpr
```

This command behaves similar to the command `ls -al /etc | more`, which you may have used in Chapter 16 on page 217 to list the contents of the `/etc` directory then send the results through the `more` command for viewing on the screen.

> **Tip:** Remember the distinction of using > and >>: using > will overwrite a file, while >> appends the information to a file. Usually, unless you're certain you want to, it's safer to use >>, because you won't lose potentially valuable information (though you may have to edit the file if you didn't want to append information to it).

## Wildcards and Regular Expressions

What if you forget the name of the file you're looking for? You can't say to your computer, "Find a file called 'sneak' or 'sneak-something'."

Well, yes you can, in a way. Using *wildcards* or *regular expressions*, you can perform actions on a file or files without knowing the complete filename. Just fill out what you know, then substitute the remainder with a wildcard.

> **Tip:** To read more about wildcards and regular expressions, take a look at the `bash` man page (`man bash`). Remember that you can save the file to a text file by typing `man bash | col -b > bash.txt`. Then, you can open and read the file with `less` or `pico` (`pico bash.txt`). If you want to print the file, be prepared: It's quite long.

We know the file's called "sneak-something.txt", so just type:

```
ls sneak*.txt
```

and there's the name of the file:

```
sneakers.txt
```

You'll probably use the asterisk (`*`) most frequently when you're searching. The asterisk will search out everything that matches the pattern you're looking for. So even by typing:

```
ls *.txt
```

or:

```
ls sn*
```

you'd find `sneakers.txt` – except that as time goes on, there will be more text files, and they'll all show up because they match the pattern you're searching for.

It helps, then, to narrow your search as much as possible.

One way to narrow the search might be to use the question mark symbol (`?`). Like the asterisk, using `?` can help locate a file matching a search pattern.

In this case, though, `?` is useful for matching a single character – so if you were searching for `sneaker?.txt`, you'd get `sneakers.txt` as a result – and/or `sneakerz.txt`, if there were such a filename.

When an asterisk, for example, just happens to be part of a filename, such as might be the case if the file `sneakers.txt` was called `sneak*.txt`, that's when regular expressions can come in handy.

Regular expressions are more complex than the straightforward asterisk or question mark.

Using the backslash (`\`), you can specify that you don't want to search out *everything* by using the asterisk, but you're instead looking for a file with an asterisk in the name.

If the file is called `sneak*.txt`, then, type:

```
sneak\*.txt
```

Here is a brief list of wildcards and regular expressions:

- `*` – Matches all characters
- `?` – Matches one character in a string (such as `sneaker?.txt`)
- `\*` – Matches the * character
- `\?` – Matches the ? character
- `\)` – Matches the ) character

You can also use wildcards for more than searching: they can come in handy when you want to move and rename files. And regular expressions can help you rename files with characters like * and ? in them.

For more on that, read on.

## 17.5 Copying, Moving and Renaming Files and Directories

By now, you've learned a little about the structure of the filesystem; and you've learned how to create files and directories.

But just because you know how to create files and directories doesn't mean that you're stuck with the changes you've made. What if you want to rename and/or move files and directories?

Let's start with the copy command.

### 17.5.1 Copying Files

Like so many Linux features, you have a variety of options from which to choose when you want to manipulate files and directories. You can also use wildcards when you're copying, moving, or deleting files and directories.

Basically, the copy command is not much more complex than typing:

```
cp <source> <destination>
```

so to copy the file `sneakers.txt` to the directory `tigger` in your login directory, just type:

```
cp sneakers.txt tigger
```

Notice that you also used relative pathnames to copy the file. You can use both relative and absolute pathnames with `cp`. Our login directory is the parent of the directory `tigger`; meaning that `tigger` is one directory down from ours.

Read the `cp` man page (`man cp`) for a full list of the options available with `cp`. But among the options you can use with `cp` are:

- `-i` – interactive. Prompts you to confirm if the file is going to overwrite a file in your destination. This is a handy option because it can help prevent you from making mistakes.
- `-r` – recursive. Rather than just copying all the files and directories, copies the whole directory tree, subdirectories and all, to another location.

- `-f` – force. Copies without prompting you for confirmation that the file should be overwritten. Unless you're sure you want to force the copy, you probably don't want to make friends with this option right now.
- `-v` - verbose. Will show the progress of the files being copied.

Just by using `cp` alone, you won't see much when the command is executed. Using an option, such as `-i`, can make the process a little more useful, because if you want to copy a file to a location that already has a file with the same name, you'll be asked first if you really want to overwrite – meaning replace – the file that's already there.

> **Tip:** Remember that among your options is `-f` (force), which can overwrite files without asking you if you're certain. Make sure, when you use the force option, that you *really* want to overwrite a file.

Now that we have the file `sneakers.txt` in the `tigger` directory, let's use `cp -i` to copy the file again to the same location.

```
[billy@localhost billy]$ cp -i sneakers.txt tigger
cp: overwrite 'tigger/sneakers.txt'?
```

If we want to overwrite the file that's already there, we can press Y and then Enter. If we think we don't want to overwrite the file, now's the time to press N and Enter.

## 17.5.2 Moving Files

To move files, use the `mv` command (`man mv`), which is similar to the `cp` command, except that with `mv` the file is physically moved from one place to another, instead of being duplicated, as with `cp`.

Common options available with `mv` include:

- `-i` – interactive. Will prompt you if the file you've selected will overwrite an existing file in the destination directory. This is a good option, because like the `-i` option in `cp`, you'll be given the chance to make sure you want to replace an existing file.
- `-f` – force. Overrides the interactive mode and moves without prompting. Unless you know what you're doing, this option doesn't play nice; be very careful about using it until you become more comfortable with your system.
- `-v` – verbose. Shows a list of the files being moved.

If you want to move a file out of your home directory and into another directory, you would type:

```
mv sneakers.txt tigger
```

or, `mv sneakers.txt /home/billy /home/billy/tigger` using absolute pathnames.

### 17.5.3 Renaming Files

Actually, we've already covered half of renaming, because when you copy or move files, you can also rename.

To copy the file `sneakers.txt` from our login directory to our `tigger` subdirectory, just type:

```
cp  sneakers.txt tigger
```

To copy and rename that file from `sneakers.txt` to `piglet.txt`, type:

```
cp sneakers.txt tigger/piglet.txt
```

To *move* and rename the file, just substitute `mv` for `cp` in the above example.

If you `cd` to `tigger` and use `ls`, you'll see the file `piglet.txt`.

If you just want to rename the file and keep its location, just `mv` in your current directory:

```
mv  sneakers.txt piglet.txt
```

### 17.5.4 Deleting Files and Directories

We talked about creating files with the `touch` command and by using redirection in Chapter 16 on page 217. And we created the directory `tigger` using `mkdir`.

But we haven't discussed how to delete files and directories.

Deleting files and directories with the `rm` command (`man rm`) is a straightforward process.

Let's take our new file `piglet.txt`, and delete it from the `tigger` directory with the `rm` command:

```
rm piglet.txt
```

What happens if we didn't really want to get rid of it? Too late! Again, that's where the `-i` (interactive) option comes in handy, because with it, we have the chance to think about whether we really want to toss the file.

```
[billy@localhost billy]$ rm -i piglet.txt
rm: remove 'piglet.txt'?
```

You can also delete files using the wildcard `*`, but be careful, because you can easily delete files you didn't intend to throw away.

To remove a file using a wildcard, you would type:

```
rm pig*
```

You can also remove more than one file in one command, as in:

```
rm piglet.txt sneakers.txt
```

Options for removing files – and directories – include:

- `-i` – interactive. Prompts you to confirm the deletion. This is good.
- `-f` – force. Overrides interactive mode and removes the file(s) without prompting. This might not be good, unless you know exactly what you're doing.
- `-v` – verbose. Shows a listing of files as they're being removed.
- `-r` – recursive. When removing directories, will remove all of the files and the subdirectories of the specified directory. This can also get rid of an empty directory.

To remove directories with `rm`, you must specify the `-r` option.

For example, if you want to recursively remove the directory `tigger` you would type:

```
rm -r tigger
```

And if you want to combine options, such as forcing a recursive deletion, you can type:

```
rm -rf tigger
```

> **Tip:** *Be careful!* `rm` is a powerful command, and can delete your entire system! If you're root and you type the simple command `rm -rf /` you're sunk – like a snake eating its tail, the command will recursively remove everything on your system.

The safer alternative to using `rm` for removing directories is the `rmdir` command. With this command, you won't be allowed to use recursive deletions, so a directory which has files in it won't be deleted.

Read the `rmdir` man page by typing `man rmdir` to find out more about the command.

### 17.5.5 Time to Learn More

So far, you've learned to become familiar with how to create accounts, using passwords, your filesystem and more.

But what we've covered is just the tip of the iceberg. There are books, websites, and newsgroups (Linux users are second to none when it comes to helping new users) to help you find out more about your new system.

You can begin with the next chapter, in which you'll find pointers to other documentation, as well as additional post-installation configuration.

# 18

# What Do I Do Now?

Now that you're becoming a little more familiar with your Red Hat Linux system, you might be wondering, "What do I do now?"

If so, this chapter is for you. We'll start with some basic places you can go to find more documentation and help from the Linux user community. Then we'll show you how to do some post-installation configuration so you can set up things just the way *you* want.

But before we do any of that, let's talk about documentation. . .

## 18.1 Getting the Documentation That's Right for You

It is critical to make sure you have documentation that is appropriate to your level of Linux expertise. There is no more certain way to make your experience using Red Hat Linux a failure than to not have the documentation you need, when you need it.

As the name implies, the *Official Red Hat Linux 6.0 Getting Started Guide* is just that – a guide to taking those first steps with your newly installed Red Hat Linux system.

Let's take a look at three categories of people using Red Hat Linux, and try to be more explicit in terms of the documentation you'll need. Let's start by figuring out your experience level. Here are the three basic categories:

**New To Linux** – Has never used any Linux (or Linux-like) operating system before, or has had only limited exposure to Linux. May or may not have experience using other operating systems (such as Windows). Is this you? If so, please turn to Section 18.1.1.

**Some Linux Experience** – Has installed and successfully used Linux (but not Red Hat Linux) before. Or, may have equivalent experience with other Linux-like operating systems. Does this describe you? If so, please turn to Section 18.1.2 on the next page.

**Old Timer** – Has installed and sucessfully used Red Hat Linux before. Are you an old-timer? If so, please turn to Section 18.1.3 on the facing page.

### 18.1.1 Documentation For First-Time Linux Users

"A journey of a thousand miles begins with a single step." This old saying can be applied to just about any endeavor; we're going to apply it to learning to use your Red Hat Linux system. Learning to use a Linux system effectively can be a long, rewarding journey, where you find that you can easily do things that people with other operating systems can only dream of. But like all journeys, you've got to start somewhere, and take that first step.

And the first step you need to take is to get yourself some documentation! This cannot be stressed enough; without documentation you will only become frustrated at your inability to get your Red Hat Linux system working the way you want.

Here's what you should look for in terms of Linux documentation:

- **A brief history of Linux** – Many aspects of Linux are the way they are because of historical precedent. There is also a Linux culture that, again, is based to a great deal on past history. A bit of knowledge about the history of Linux will serve you well, particularly as you interact with more experienced Linux users on the Internet.
- **An explanation of how Linux works** – While it's not necessary to delve into the most arcane aspects of the Linux kernel, it's a good idea to know something about how Linux is put together. This is particularly important if you've been working with other operating systems; some of the assumptions you hold about how computers work may not transfer from that operating system to Linux. A few paragraphs that discuss how Linux works (and particularly how it differs from the operating system you're used to), can be invaluable in getting off to a good start with your Red Hat Linux system.
- **An introductory command overview (with examples)** – This is probably the most important thing to look for in Linux documentation. The design philosophy behind Linux is that it's better to use many small commands connected together in different ways than it is to have a few large (and complex) commands that do the whole job themselves. Without some examples that illustrate the Linux approach to doing things, you will find yourself intimidated by the sheer number of commands available on your Red Hat Linux system.

Here is some direction that may help to match all of your requirements:

- **Books** – **Linux for Dummies,** by John "maddog" Hall, published by IDG; **Using Linux,** by William H. Ball, published by Que; **Running Linux,** by Matt Welsh and Lar Kaufman, published by O'Reilly & Associates; **Red Hat Linux Secrets,** by Naba Barkakati, published by IDG.
- **Red Hat's website** – At our very own website (`http://www.redhat.com`), you'll find links to the Linux Documentation Project (LDP), the *Official Red Hat Linux 6.0 Installation Guide,* FAQs (Frequently Asked Questions), a database which can help you search for a Linux Users Group near you, a knowledgebase of information and more. In short, you'll find a wealth of information to help you get started.
- **Newsgroups** – Linux users are second to none when it comes to helping new users understand Linux. You can find dozens of Linux-related newsgroups on the Usenet, but a quick search through Deja News (`http://www.dejanews.com`) shows: `linux.help`; `linux.redhat`, `linux.redhat.digest`, `linux.redhat.misc` and `linux.redhat.rpm`. Also, from the Deja News website, you can frequently search for specific information from Linux newsgroups.

As you gain more experience using your Red Hat Linux system, you'll probably find that you'll need more in-depth information. Continue reading the next section to find out more about the kinds of documentation that will help you at that point.

### 18.1.2 Documentation for More Experienced Linux Users

If you've used other Linux distributions, you probably already have a basic grasp of the most frequently used commands. You may have installed your own Linux system, and maybe you've even downloaded and built software you found on the Internet. What sorts of information will you need?

- **Task-oriented information** – Many times, you'll find that you'd like to configure your Red Hat Linux system in a certain way, but you're not sure where to begin. In this case, it's often a big help to see what others in similar circumstances have done. This is where the Linux Documentation Project (also known as the LDP) can come in handy. Each of their HOWTOs document a particular aspect of Linux, from low-level kernel esoterica, to using Linux in an amateur radio station.

  If you selected one of the various `howto` packages when you installed Red Hat Linux, you'll find the HOWTOs on your system in `/usr/doc/HOWTO`.

### 18.1.3 Documentation for Linux Gurus

If you're a long-time Red Hat Linux user, you probably already know that the following pretty much says it all when it comes to documentation:

*Use the Force – Read the source!*

There are times when you'll just have to sit there and look at the sources to understand things. Fortunately, because of the freely available nature of Linux, it's easy to get the sources. Now if it were only that easy to understand them…

Now that we've covered documentation, let's look at some other common system tasks.

## 18.2 The X Window System

While there are people that will use the character-cell interface present when you first log in, many people prefer a graphically-oriented user interface. For Linux systems, the graphical user interface of choice is the X Window System.

In order to run X, you need to have the necessary packages installed. If you selected the "X Window System" component to be installed when you originally installed Red Hat Linux, everything should be ready to go. In that case, please refer to section 18.2.2 on page 276.

### 18.2.1 If You Haven't Installed X

If you didn't select the "X Window System" component when you installed Red Hat Linux, your Red Hat Linux system won't have the necessary software installed. While it is possible to manually install the required packages, you'll probably find it easier to re-do the installation, particularly if you're new to Linux. Another possibility is to perform an upgrade of the software and select the X Window System components that you need from the package selection installation process.

#### XFree86 Configuration

There are three methods for configuring XFree86 on your machine:

- `Xconfigurator`
- `xf86config`
- by hand

`Xconfigurator` and `xf86config` are functional equivalents and should work equally well. If you are unsure of anything in this process, a good source of additional documentation is:

```
http://www.xfree86.org
```

`Xconfigurator` is a full-screen menu-driven program that walks you through setting up your X server. `xf86config` is a line-oriented program distributed with XFree86. It isn't as easy to use as `Xconfigurator`, but it is included for completeness. If these utilities fail to provide a working `XF86Config` file, you may have an unsupported card or you may need to write the config file by hand. Usually the former is the case, so check and make sure your card is supported before attempting to write the config file yourselfIf your card is not supported by XFree86 you may wish to consider using a commercial X server. If you have questions about whether or not your video card is supported you can check out `http://www.xfree86.org` for information on XFree86.

**The X Server** Provided you selected the proper video card at install time, you should have the proper X server installed. When later running `Xconfigurator` or `xf86config`, you need to make sure you select the same video card or the autoprobe will fail.

If you think you installed the wrong X server for your video card, you will have to install the correct one before it can be configured. For instance, if the CD is mounted on `/mnt/cdrom`, and you need to install the S3 server, enter the following commands:

```
cd /mnt/cdrom/RedHat/RPMS
rpm -ivh XFree86-S3-3.1.2-1.i386.rpm
ln -sf ../../usr/X11R6/bin/XF86_S3 /etc/X11/X
```

This will install the S3 server and make the proper symbolic link.

**Xconfigurator** To configure the X Window System you must first select your video card. Scroll down the list of supported cards until you locate the card in your machine. Figure 18.1 may help you determine the video server that matches your hardware. If your card is not listed it may not be supported by XFree86.In this case you can try the last card entry on the list (Unlisted Card) or a commercial X Windows server.

The next step is to select your monitor. If your monitor is not listed you can select one of the generic monitor entries or "Custom" and enter your own parameters. Custom monitor configuration is recommended only for those who have a sound understanding of the inner workings of CRT displays. The average user should probably use one of the generic selections from the list. After selecting a monitor you need to tell Xconfigurator how much video memory you have. Move the highlight to the appropriate list entry and then press Enter or F12 to continue. For the next step it is recommended that you select the default (No Clockchip Setting) entry, but experienced users may want to select a specific clockchip.

**Selecting your Server** If you are unsure what chipset you have, the best way to find out is usually to look at the card. Figure 18.1 lists which chipsets and boards require which servers. Pick the one that best matches your hardware.

**Finishing Up** If later you want to increase your refresh rate for your monitor, you can edit the config file by hand or you can run `Xconfigurator` again and pick a monitor from our list that more closely matches the specs of your monitor.

| Server | Chipset |
|---|---|
| 8514 | IBM 8514 / A Boards and true clones |
| AGX | All XGA graphics boards |
| I128 | #9 Imagine 128 (including Series II) boards |
| Mach32 | ATI boards using the Mach32 chipset |
| Mach64 | ATI boards using the Mach64 chipset |
| Mach8 | ATI boards using the Mach8 chipset |
| Mono | VGA boards in monochrome |
| P9000 | Diamond Viper (but not the 9100) and Others |
| S3 | #9 Boards, most Diamonds, some Orchids, Others |
| S3V | Boards using the S3 ViRGE (including DX, GX, VX) chipset |
| SVGA | Trident 8900 & 9400, Cirrus Logic, C & T, ET4000, S3 ViRGE, Others |
| VGA16 | All VGA boards (16 color only) |
| W32 | All ET4000 / W32 cards, but not standard ET4000's |

**Figure 18.1**: XFree86 X Servers

The final configuration step consists of selecting the video modes that you want to include in your XF86Config file. Use the arrow keys to move the cursor up and down the list under each color depth (8, 16 and 24 bit). Use the Spacebar to select individual resolutions and the Tab key to move between color depth fields. When you have selected the video modes you want to use move the cursor to the "OK" button and press Enter, or use the F12 shortcut. An information screen will give you the most current information on selecting video modes, starting and stopping the X server.

## 18.2.2 If You've Already Installed X

If you selected the "X Window System" component when you installed Red Hat Linux, but didn't choose to start X automatically when the system boots, you're all set. All you'll need to do is to get X running. As it turns out, there are two ways to do this. You can:

- Start X manually after you log in.
- Start X automatically whenever the system boots.

Let's start with the manual procedure.

### Starting X Manually

Red Hat Linux, during the installation, gives you the option of starting X automatically. If you didn't choose this option, you'll see the character-cell login prompt you saw when you first booted your

Red Hat Linux system.

In order to get X started, you'll first need to log in. Do so (using your non-root account), and then enter the `startx` command. The screen should go blank, and (after a short delay) you should see a graphical desktop with one or more windows. The appearance of the desktop you'll see will vary, depending on the packages you installed and other variables.

### Starting X Automatically

**Please Note:** Make sure you verify that your X configuration works properly before making X start automatically. Failure to do so can make it difficult to log into your Red Hat Linux system. If you haven't done so already, review the previous section before continuing.

It is possible to configure your Red Hat Linux system such that X will start automatically whenever the system is booted. When configured in this manner, `xdm` will run, which will present a graphically-oriented login screen. After logging in, you will have a regular X session running, just as if you had issued a `startx` command manually.

Here's a quick overview of how it's done:

- Test `xdm` using `telinit`.
- Edit `/etc/inittab`.
- Reboot.

Let's look at each step in more detail.

**Testing `xdm` Using `telinit`** – The `telinit` command is used to change your Red Hat Linux system's "run level." It is the run level that controls various aspects of system operation, including whether `xdm` should be started or not. Since `xdm` is started at run level 5, you'll need to issue the command:

```
/sbin/telinit 5
```

**Please Note:** You will need to be logged in as root in order to use `telinit`. Also note that you should *not* be running anything else on your Red Hat Linux system when you change run levels, as any running programs may be killed by the run level change.

If everything is configured properly, after a short delay you should see an `xdm` login screen. Log in, verifying that an X desktop appears. Then log out to make sure that `xdm` reappears. If it does, your system is configured properly to automatically start X. If there are problems, you can go back to run level 3 using `telinit` (ie, "`/sbin/telinit 3`"), or by rebooting.

**Editing** `/etc/inittab` – The file `/etc/inittab` is used to, among other things, determine the system's default run level. We need to change the default run level from 3 to 5; therefore, we'll need to edit `/etc/inittab`. Using the text editor of your choice, change this line in `/etc/inittab`:

```
id:3:initdefault:
```

When you're done, it should look like this:

```
id:5:initdefault:
```

**Please Note:** Make sure you change *only* the number 3 to be 5! Do not change anything else, otherwise your Red Hat Linux system may not boot at all! When you've made the change, exit the editor, and use this command to review your handiwork:

```
less /etc/inittab
```

(Press the Space to page through the file; Q will exit.) If everything looks OK, it's time to reboot. Use the `shutdown` command to properly shut down your system, and you're done!

## Exiting X

When you're done, and you'd like to leave X, select the **GNOME foot** on the panel bar, choose **Log out** and answer **Yes** to confirm your decision. You will then be logged out of your system.

**Please Note:** If you're running GNOME as your desktop environment, all programs that were currently running will be restarted when you log back in.

## Changing Your Desktop

You can use the **Switchdesk** feature to change out your desktop environment. **Switchdesk** will present a screen which allows you to switch between any desktop environments that you may have installed on your system. You will then be asked to exit and restart X. You will see your new desktop of choice after X has restarted.

To use the **Switchdesk** feature you can type `switchdesk` at the command line of an Xterm. If you are using GNOME, click on the **GNOME foot**, choose **Run Programs** and type `switchdesk`.

## Virtual Consoles and X

Note that even if you're running X, you still have access to the regular character-cell user interface. That's because Red Hat Linux uses *virtual consoles* while X is running. To switch to a virtual console, press Ctrl-Alt-Fn, where Fn is any one of the first six function keys. When switching virtual consoles, you should see a standard login prompt; at this point you can login and use the system normally on any (or all) of the virtual consoles.

When you'd like to go back to your X session, simply press Ctrl-Alt-F7.

**Please Note:** Some people remap keys under X; if you do this, be aware that your X keyboard mappings will only be active when in X. This can be confusing if, for example, you've swapped the Ctrl and Caps Lock keys under X, as you will have to use two different keystrokes to switch between X and non-X virtual consoles.

### Handy X-Based Tools

There are several tools that can make life easier for the new Red Hat Linux user. They perform tasks that either require root access, or can only be done by memorizing arcane commands. They all require X to run, so you'll need to get that set up first. These tools are:

- **User Information Tool** – Makes it easy to update your "gecos," or basic account information. Run `/usr/bin/userinfo` to start it.
- **User Password Tool** – Changing passwords is simple with this tool. It's started by running `/usr/bin/userpasswd`
- **Filesystem Mounting Tool** – Makes mounting and unmounting filesystems simple. Every user-mountable filesystem must have the `user` option present in `/etc/fstab` (see the `mount` man page for more information on the `user` option). Run `/usr/bin/usermount` to start it.
- **Network Device Tool** – Starting and stopping network interfaces becomes a point-and-click operation with this tool. Run `/usr/bin/usernet` to start this tool. Requires that every interface to be controlled by `usernet` is configured to be "user-controllable." This can be done by using `netcfg`, and selecting the interface's **Allow any user to (de)activate interface** checkbox.

## 18.3 Configuring Your Red Hat Linux System For Sound

By default, the only sound you'll hear out of your newly installed Red Hat Linux system is the ordinary, boring, default beep. If your computer system has sound hardware, chances are you can make it work under Red Hat Linux. In some cases sucessfully getting sound support to work requires a kernel rebuild. However, most of the time it's possible to use the modular sound drivers.

### 18.3.1 Modular Sound Drivers

Red Hat Linux 6.0 includes the standard OSS/Free sound drivers. This makes it possible to load and unload the various sound drivers without recompiling the kernel or rebooting.

For additional information, please consult the README files in the `rhsound` documentation directory (`/usr/doc/rhsound*`), and also the files in the kernel documentation directory (`/usr/doc/kernel-doc-*/sound`).

There is a mailing list associated with the modular sound drivers (`sound-list@redhat.com`). To subcribe, send mail to `sound-list-request@redhat.com`, with "subscribe" as the subject line.

### Recognized Sound Cards

At this point, most sound cards should be recognized by the modular sound drivers; however drivers for the following sound cards were among the first to be developed, and as such, have received the most testing:

- Sound Blaster 1.0
- Sound Blaster 2.0
- Sound Blaster Pro
- Sound Blaster 16
- Sound Blaster 16 PnP
- Sound Blaster AWE32/AWE64

## 18.3.2 Sound Card Configuration Tool

Also included in Red Hat Linux 6.0 is `sndconfig`, a screen-oriented utility that can properly configure modular sound card drivers.

There are a few things that you should know about `sndconfig`:

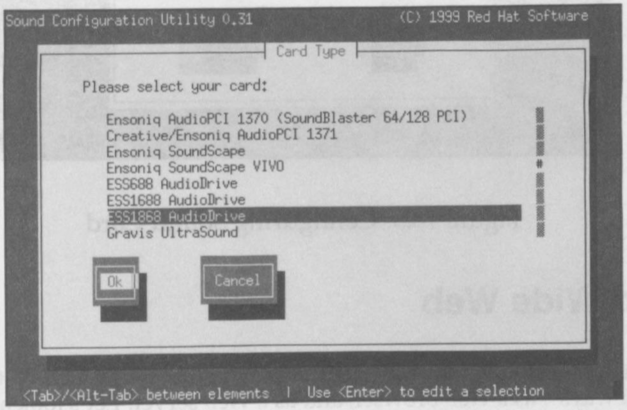
**Plug and Play Aware** – `sndconfig` is able to detect and automatically configure Plug and Play sound cards such as the Sound Blaster 16 PnP. The configuration information is stored in the `/etc/isapnp.conf` file, along with the configuration information for any other Plug and Play devices. In order to ensure that no configuration will be lost, `sndconfig` saves your original `/etc/isapnp.conf` file as `/etc/isapnp.conf.bak`.

**Modifies** `/etc/conf.modules` – `sndconfig` modifies the module configuration file `/etc/conf.modules` by adding information about the module options required for your sound card. Note that `sndconfig` saves your original `/etc/conf.modules` file as `/etc/conf.modules.bak`.

To set up your sound card, run `/usr/sbin/sndconfig`. Note that you must be root in order to run `sndconfig`. If your system contains a Plug and Play sound card, `sndconfig` will identify it, and configure it appropriately.

If you do not want `sndconfig` to probe for Plug and Play sound cards, run `sndconfig` with the `--noprobe` option. It is also possible to manually specify the settings for your sound card; to do so, run `sndconfig` with the `--noautoconfig` option.

If `sndconfig` cannot automatically identify your system's sound card (or you ran `sndconfig` with the `--noprobe` option), you'll be asked to select the type of sound card you have (See Figure 18.2). Use the ↑ and ↓ keys to scroll through the different cards listed, and position the highlight on the entry that matches your system's sound card.



```
Sound Configuration Utility 0.31                    (C) 1999 Red Hat Software
                              Card Type
      Please select your card:

          Ensoniq AudioPCI 1370 (SoundBlaster 64/128 PCI)
          Creative/Ensoniq AudioPCI 1371
          Ensoniq SoundScape
          Ensoniq SoundScape VIVO
          ESS688 AudioDrive
          ESS1688 AudioDrive
          ESS1868 AudioDrive
          Gravis UltraSound

 <Tab>/<Alt-Tab> between elements  |  Use <Enter> to edit a selection
```

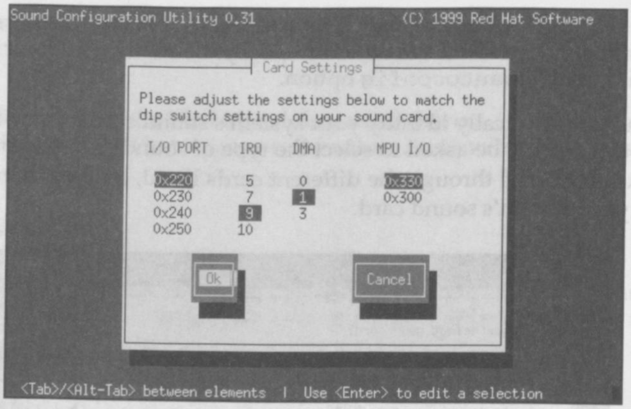
Figure 18.2: Selecting Sound Card Type

If you've run `sndconfig` with the `--noautoconfig` option, you'll see a screen similar to the one in Figure 18.3 on the next page. Here is where you can specify the settings for your sound card. Using the Tab key, select a field. Then use the arrow keys to select the desired setting for that field. When finished, select **Ok**, and press Space.

After this screen, you may see an informational dialog box saying that `/etc/conf.modules` already exists. select **Ok** and press Space to continue.

Finally, `sndconfig` will attempt to play a sound sample to verify proper configuration of your sound card. If you can hear the sound sample (make sure the speaker volume is turned up), you're done!

**Please Note:** On cards that have a recognized MIDI synthesizer, `sndconfig` will attempt to play a MIDI sample as well.



```
Sound Configuration Utility 0.31                    (C) 1999 Red Hat Software

                      Card Settings

          Please adjust the settings below to match the
          dip switch settings on your sound card.

             I/O PORT    IRQ    DMA      MPU I/O

              0x220       5      0        0x330
              0x230       7      1        0x300
              0x240       9      3
              0x250      10

 <Tab>/<Alt-Tab> between elements   |  Use <Enter> to edit a selection
```

Figure 18.3: Configuring Sound Card

## 18.4 World Wide Web

The World Wide Web is one of the hottest aspects of the Internet today. Red Hat Linux lets you get in on the action in two ways – as a Web browser, and as a Web server. Let's look at both.

### 18.4.1 World Wide Web Browsers

A variety of Web browsers are available for Linux, including freely distributable browsers such as Arena, Lynx, and Grail. The most popular commercial browsers are those from Netscape Communications Corporation. And now they're available with Red Hat Linux 6.0! If you selected the `netscape-communicator` or `netscape-navigator` packages, you're ready to surf. Enjoy!

### 18.4.2 World Wide Web Server

If you installed the Apache Web server (from the `apache` package), then your Web service is already up and running! Just point your Web browser at `http://localhost`.

The default page shown is `/home/httpd/html/index.html`. You can edit this file (or completely replace it) to your liking. All the CGI programs, icons, and html pages are stored in `/home/httpd`, but this can be changed in the apache configuration files, all of which are stored in `/etc/httpd/conf/`. Logs of all httpd activity are kept in `/var/log/httpd/`. Setting up your Web site is as easy as adding your own HTML pages and links to the `/home/httpd/html/` directory. For more information on customizing your Web server we recommend a reference such as *HTML: The Definitive Guide* by Chuck Musciano & Bill Kennedy, published by O'Reilly & Associates.

## 18.5 Good luck and enjoy!

As we said before, there is a wealth of information available which can help you get the most out of your your new Red Hat Linux system. We hope this guide has assisted you in your journey.

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# OFFICIAL red hat® Linux 6.0 Operating System

## The Award-Winning Red Hat Linux Operating System

Selected as the Operating System Product-of-the-Year, by InfoWorld for the past three years, the open-source Red Hat Linux offers you more stability, power and control than any other OS.

## New OS Features

**Easy to Use**

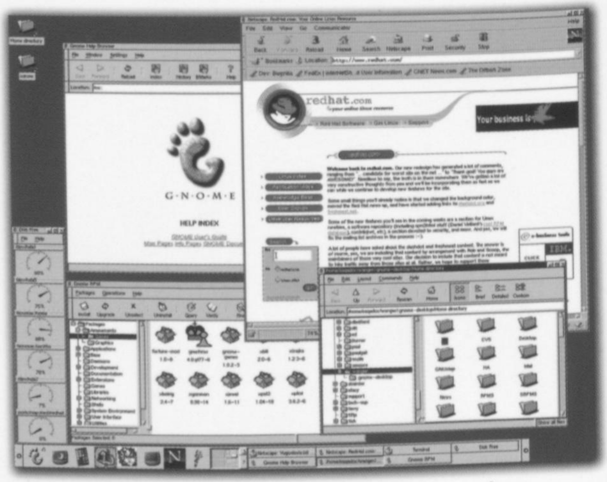
- Autodetection and configuration of hardware
- NEW Graphical User Interface
- Automatically starts GUI upon complete installation

**New 2.2 Kernel**

- Enhanced performance
- Automatic SMP support

**Support for More Hardware**

**The Latest Optimized C Compiler**



New GNOME Interface featuring applications such as File Manager, GNOME Help Browser, and Package Manager.

## Getting Started Guide

If you have recently installed Red Hat Linux or if you just want to learn about using the operating system, you may need some guidance in getting started. From how to effectively use the Red Hat Linux Operating System to navigating GNOME, the Red Hat Getting Started Guide is your "Official" manual to become an effective Red Hat Linux user. Written by the same team who has written the Red Hat Linux Installation Guide, this Guide's easy-to-read approach will take you from the ground up, providing information every Red Hat Linux user should know.

## Contents Include

**Commonly Used Commands**

**Navigation of New Desktop**

## What People Are Saying

*"If you're trying Linux for the first time, Red Hat is the best choice."*

**PC Magazine**

*Editor's Choice Award, 1998*

*"Out of the box, Red Hat is a full-featured application server."*

**Information Week**

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